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The Romans and Archaeology*

by D. E. STRONG

My views about Inaugural Lectures coincide precisely with those of Diogenes on marriage: 'For a young man, not yet—for an old man, never'. I am two years older than when I first occupied this chair and ageing rapidly, but I am not in a position to postpone this experience any longer. In these enforced circumstances I have read widely among Inaugural Lectures of this and related chairs. I found one containing passages that would make ideal copy for a recruiting poster. There was another one intended, I think, to prove that archaeology was history (or it might have been vice-versa) and another which I did not understand at all. But one lesson I have extracted from my efforts. Say nothing at all that matters or you will surely regret it!

But one thing is certainly my duty, especially as I am the first Professor of the Archaeology of the Roman Provinces concerned with teaching a first degree in my subject, namely to say what my subject is all about; and that is no mean problem. I have an Anglo-Saxon friend who, when he sees a postcard or photograph of the Venus de Milo (you might like to refresh your memories of the Venus de Milo or you might find a memory of the Venus de Milo refreshing), is wont to observe, 'That is what I call Archaeology with a capital C'. We know, of course, that he means Classical Archaeology, and it is an interesting phenomenon that while my friend, and everybody else, knows what is meant by Classical Archaeology, he is not at all clear about Roman Archaeology. It ought to be the other way round because Roman is a much easier word than Classical, Classical being a notoriously difficult one. The explanation is, as many of you know, that Roman Archaeology is a comparatively recent limb of our studies which only came into separate existence because it had been ignored. When it was subsumed under the heading of 'classical' (which in this sense meant

* This Inaugural Lecture was delivered on 12th May, 1970 at the Institute of Archaeology under the chairmanship of the Director, and custom, if not law, demands that it be published. I have avoided the problem of editing it for publication by complete inaction. Though I am not aware that the lecture contained any deliberate falsehoods, there are statements in it which I would not like to see supported by exact chapter and verse, nor do I wish to give the lecture a false erudition by learned footnotes. Although, however, there may be an air of frivolity about certain parts of it it does contain many statements in which I do whole-heartedly believe. I should perhaps add that although I now regard the work of my colleagues even more highly than I did at the time I wrote it, I still think Roman Archaeology is the best discipline for a university education.

At certain points in the lecture an illustration, not always entirely relevant, appeared on the screen although the lecture was not an illustrated one: the omission of these illustrations does not seem to detract from the text of the lecture. I would like to thank all my colleagues for their kind support on this occasion, with special thanks to Mrs. Thelma Batchelor, Miss Nicky Marskell, and Mr. Mark Hassall, and as always to the Director of the Institute for his kindness and friendly hospitality.

Greek and Roman) it was getting increasingly short shrift. Most classical archaeologists expired, and still do, with Alexander at Babylon, and some of them a lot sooner. Our local Roman antiquities, or some parts of them, continued to flourish but they were part of our national heritage and that is quite another story. Even to-day when *Britannia* may no longer rule the waves, she still manages successfully to rule Roman Archaeology. A large number of other disciplines, among them what I believe are called the social sciences, have arisen in similar circumstances; historians were supposed to have lacked the practical understanding of mass reaction to urban and rural change. The same is true, if I make bold to say so, of Environmental Archaeology, which came into existence because Archaeology, which ought to be an environmental study, was not giving proper scientific attention to the effects of man on his environment and of the environment upon him. There will be more such Archaeologies any day now.

Now when a limb breaks off in this way, the first thing it tries to do is to establish an independent existence for itself. Instead of being interred under Classical Archaeology, Roman Archaeology wanted to be master of a different set of disciplines. It was, I think, fooled into this position by Archaeology with a capital 'A'. I read not so long ago a very influential book on Archaeology by a distinguished Professor from one of the Low Countries who, having established to his satisfaction that Archaeology was a splendidly objective discipline which builds up a reliable picture of the past, contrasts it with Classical Archaeology which is mere art-history. He talks about archaeology having achieved its independence and concludes magnanimously that works of art are not to be excluded from archaeology if, in his words, 'they can help clarify the history of former civilisations'. It is a poor look out for archaeology if they can't. But the point I want to make here is that Roman archaeology, for this sort of reason, has set its face against the traditions of classical archaeology. Roman Archaeology has indeed managed in some curious kind of way to give itself a separate existence from Classical Archaeology but it has never been sure what it ought to call itself. In Oxford it passes as the Archaeology of the Roman Empire, in Newcastle it is called Roman History and Archaeology, and here it is the Archaeology of the Roman Provinces. I cannot, I am afraid, defend the title of this particular Chair in any intelligent way. It was, I may say, defended by one of my predecessors on the grounds that we, as good provincials ourselves, ought to be interested in such things as Celtic Craftsmanship and the art of Dura Europos. So, indeed, we should, but not to the exclusion of the centre. Nor, indeed, am I any happier with his concept of 'the provincialisation of history' because it puts a meaning on the word history which confuses me. There are things going on in remote South Sea Islands which, no doubt, deserve the closest attention but they are not often the stuff of history.

So what should Roman archaeology be about? The precise content might simply be a matter of less than academic interest but for the fact that it is now the subject of a degree course in this University, and I think that there are some people in this audience who are studying for degrees in the subject, so if there is any doubt about the pedigree they ought to be told. To explain what I think it might be about, I thought I should

begin at the beginning. Archaeology came into being somewhere in the 5th century B.C. There had, of course, been many earlier archaeological episodes, if they can be so-called. One with political overtones took place when Solon of Athens, to prove the Athenian claim to the island of Salamis, pointed out that the Megarians had always buried towards the East, and 3 or 4 people to a grave; the Athenians the other way round and singly. The interpretation of the significance of burial customs in archaeology has plagued us ever since. A well known use of archaeological observation from burials was made to prove that the Carians had once inhabited Delos. This episode is well recorded by Thucydides, but it is salutary to remember that the verb *to archaeologise* which he uses a little later, does not apparently mean to 'discuss antiquities' but 'to trot out the same old stories'. On such a knife-edge were our studies balanced when they began to exist.

It was the sophist Hippias of Elis who figures in two of Plato's Dialogues, who first explained archaeology in Hellenic literature when he said that 'people like to hear about the genealogies of heroes and men and about the foundation of cities'. This Hippias boasted, as some archaeologists are still inclined to do, and one or two with justification, that he combined universal knowledge with a mastery of many crafts. He set a tradition of scholarly collectors of 'antiquarian lore' whose activities were quite separate from the serious business of writing history. The Greek word 'archaeology' was translated into Latin as *antiquitates* and so the pursuit of the subject continued in a leisurely, gentlemanly sort of way. The Museum at Alexandria had lots of such antiquarians, far better treated than their modern successors who can no longer claim free meals, vast salaries, exemption from taxes and the like.

The Romans inherited this kind of quiet relaxed antiquarianism which I often think is my kind of archaeology. By contrast I suspect my illustrious predecessor Sir Mortimer Wheeler would like to remove the idea of a chair from the concept of a professorship of archaeology altogether, just to make sure that no one ever thought of sitting down in it. But one thing is certain, Roman archaeology was never thought of as concerned with the business of history. I am prepared to admit that the main reason for this was because the Romans were basically unhistorical. We, on the other hand, and even some historians, think that history *matters*. Several ancient writers were convinced that nothing significant happened before the contemporary events they had described and that nothing was likely to happen after. Among the poets Lucretius asked his readers to: 'Consider how the past ages of eternal time before our birth were no concern of ours.' I have been told that it is because we are so worried about the future that we are obsessed with the past; no doubt this is over-simplifying, but I hope one is entitled to over-simplify in an Inaugural Lecture. My main point is that the Romans never did convert their kind of learned curiosity about the past into Archaeology with a capital 'A' which exists on the idea that by using a multitude of scientific techniques, it can make up for the absence of written history and recreate the past. It would not have occurred to them that it could be done, and they wouldn't have wanted to do it anyway.

From these beginnings, how did Roman Archaeology develop? Its history has still to be written but I would like to continue my theme. It may be that if we can decide what Roman archaeology was about, we may throw some light upon what Roman archaeology should be about today. I would like to deal with it, at the risk of confusing you, from a very personal point of view, which I suppose is also allowed in an Inaugural Lecture. My autobiography is very dull, but I ought to say that my first steps in archaeology were wisely guided by the wife of the Director of this Institute and that, however you look at it, must be of some significance in my appointment to this Chair. Since being educated, I have had three jobs, one in the Ancient Monuments Inspectorate of the Ministry of Public Building and Works, the second in the Greek and Roman Department of the British Museum, and the third here at the Institute of Archaeology. Between them these three institutions cover almost every aspect of archaeology in this country and I thought it might be interesting, always keeping in mind the aim of discovering the character of Roman Archaeology, to consider what the Romans' attitude would have been to these highly respected bodies.

First, the Ancient Monuments Department. It is, of course, a universal characteristic to praise what is old. But the Romans, while they praised interminably old institutions, old religions, old religious observances, and Romans of the old school, rather despised old buildings and ruins. They did speculate a bit on some of the very old ones—walls built by the Cyclops, for example—but I don't think they did much to help keep them up; and although they did in the end set up an efficient Ministry of Public Buildings, they would never have contemplated giving it an Ancient Monuments Branch. Curiously enough, the most interesting piece of legislation to protect old buildings is a well-known decision of the Senate passed in A.D. 45, the purpose of which seems to have been the not terribly enlightened one of preventing profiteering in secondhand building materials. A second decree preserved on the same bronze tablet as the first reveals the Roman attitude when it states that no part of Italy should be disfigured by the ruins of old buildings, so that it might be said that the Roman state was already exhausted with old age. Ruined quarters of the city, however picturesque, were thought of as rather sordid. Vitruvius' favourite temple, the temple of Honos and Virtus, was only about 70 years old when he wrote but even he cannot refrain from observing how much better it would have been if it had been built in the up-to-date materials—marble and so on. So it is not surprising that in the palmy days of the Roman Empire during the second century A.D., so many old Roman temples were given shining and quite unsuitable marble elevations, contrasting completely with the homely materials in which they were originally built. And, finally, in the 4th century A.D. Imperial taste produced what can be called a Chief Inspector's nightmare the famous Arch of Constantine which has sculpture and architecture looted from many ancient and venerable buildings, and succeeds, nonetheless, in being quite the finest of Roman Triumphal Arches.

But although the Ancient Monuments branch would have had a very rough deal, there were times when the Historical Buildings Department, as it was in my day,

might well have flourished. If the Romans were no lovers of ruins, they did pay careful attention to the restoration of buildings which were needed for use, and it is only fair to say that a lot of buildings were restored very skilfully and thoughtfully during the period of the Roman Empire. One such building is the charming Round Temple by the Tiber in Rome where it takes a very practised eye to distinguish between the original parts of the second century B.C. and those which were restored probably after Nero's fire. There were also some ambitious schemes, the like of which they don't often have to deal with even today. In the time of the Emperor Augustus in Athens, and I suppose the enterprise was Roman, they were moving whole temples bodily from one place to another. The classic case is the Temple of Ares in the Agora which was moved from some unidentified site in Attica. I often wonder whether at the same time any whole building was transported to Italy, but we have no proof of that; a hundred years earlier, had they thought of it, they certainly would have, but in Augustus' time there was a 'Return the Elgin Marbles' feeling about, and even Emperors went warily.

The other activities of the Ancient Monuments Inspectorate—the recording of neglected or forgotten sites, field work and excavation—have no prominent place in Roman antiquarianism, but the few recorded episodes are not without interest. The best known example is recorded by Plutarch who wrote about A.D. 100; the episode is supposed to have taken place much earlier but the attitude of mind is surely that of his own day. Agesilaus, King of Sparta, had heard that the tomb of Alkmene mother of Herakles, from whom Spartan kings claimed descent, was being opened near Haliartos. 'I was longing to hear about the general appearance and contents of the tomb of Alkmene when it was opened. No vestige of a body was to be found but only a bronze bracelet of no great size and two earthen pots full of petrified soil and a bronze tablet of letters of the most remarkable antiquity which were quite impossible to read, even though when the bronze was washed they were perfectly clear to see. The character of the writing was unique, un-Greek, perhaps most like the Egyptian, so Agesilaus sent a copy to the king of Egypt, with a request to show it to the priest and see whether he could make anything out of it.' We may guess that it was in Minoan-Mycenean script and, as it turned out, the Egyptian epigraphist, seated in solitary confinement—where all epigraphists would like to be—for three days, worked through ancient books of writings and finally announced that it contained instructions to hold a musical competition. The language he said was one used when Proteus was king. It was indeed the same language that Herakles had learnt. This passage seems to contain most of the elements of scientific investigation of archaeological material; one less sympathetic scholar has also suggested that we have here another modern phenomenon—the expert with a big reputation who makes up his information rather than admit he does not know. This was an accidental discovery, and it may seem at first sight odd that this sort of thing did not happen more often by intent. The chief reason is the religious taboo, not only on tombs but on all treasure. Plato takes the strong view that no one should lift a treasure unless it was buried by his own family

and the same ideas run through Roman law; it was always sacrilege to open the tombs of the dead.

I find another account of a piece of Roman field work even more entertaining; it was carried out by Cicero, an archaeologist in the best Roman sense, whose antiquarianism was simply part of the traditional Roman way of recharging the batteries after serious business. He was quaestor in Sicily in 75 B.C. as a young man, and he set out to find the tomb of Archimedes, of which he knew the general form and the text of its inscription. The tomb was surmounted by a sphere and a cylinder, so that although it was overgrown with thorns and woods, Cicero was able to identify it and presumably to supply the missing bits of the inscription, half of which we are told was rubbed away and illegible, a typical ancient inscription. What is most interesting is the evidence of Cicero's attitude, that of the humanist antiquarian of the day prepared to do a gentle piece of field work on an afternoon's outing. It is interesting to find Cicero again involved in another early piece of epigraphic research. Aulus Gellius tells us that Pompey the Great, when he was about to put the dedicatory inscription on the Temple of Venus Victrix associated with his theatre, having been consul 3 times, wanted to know whether to put COS TERTIO or COS TERTIVM. No one seemed to know so Cicero, who didn't know either, suggested the compromise COS TERT. A crafty solution and a good story but when Gellius went to look he found that the figure 3 was in fact represented by three strokes. This simple epigraphic research revealed that either something had happened to the inscription since Pompey's day, or it wasn't such a good story after all.

The Romans quite predictably never applied systematic archaeological research to the legends and heroes of the past. There was a world of difference between looking for Archimedes' tomb and, say, looking for the tomb of Aeneas. It was not simply their wonderful powers of suspending disbelief when it came to clothing the most improbable figures in flesh and blood, but the origins of their archaeology would never have suggested to them, as I am afraid it has suggested itself to many moderns, that archaeology could be a substitute for legend and history, or indeed that historical fact could be tested archaeologically. The early traditions had a sacred validity and you cannot make history out of pots and pans. No, the point was that history was for the moralist and the politician, and archaeology was for the leisured enquiring mind. So there was no likelihood of archaeology being a scientific study; indeed, the best known episode of archaeological investigation in Roman times is in the finest traditions of 19th century treasure hunting. It occurred when Julius Caesar established his colony at Corinth and the wily old veterans went to work with a will digging up bronzes and other small objects from old tombs and they flooded the market with profitable objects d'art, which became known as *necrocorinthia* and fetched very high prices. Buried treasure never lost its fascination. The Emperor Nero was very easily fooled when a certain Caesellius Bassus claimed to have found gold on his estate in Africa which he said was Dido's Treasure. A regular South Sea Bubble developed and with

not dissimilar results. In late Roman legislation it is enacted that anyone may dig for treasure provided he does not make cruel and unlawful sacrifices before doing so.

So we leave my old colleagues at the Ministry of Works, hopelessly struggling to preserve old buildings and monuments to promote scientific programmes of archaeological research and rescue excavation. My colleagues at the British Museum, on the other hand, would have been far better placed. It is true that Rome had no museums in the modern sense—institutions whose chief motivation was, and many people still think should be, educational. The Roman aristocracy was never fired with the educational zeal which induced rulers and powerful ministers of the 18th century to give their collections to form the basis of what are now the great public museums. The Roman aristocrat, like Dr. Johnson, 'would as soon have thought of building a man-of-war as of founding a museum.' But museums of a kind did arise; the chief motives being public display and religious dedication.

From the second century B.C. onwards Roman temples and public places were filled with sculptures and works of art looted, like ours, from foreign parts, which made them remarkably like some of our own public art galleries-cum-museums. In the second and first centuries B.C., which correspond to our own 18th–19th century, the great period of British collecting, large public and private collections of art and antiquities grew up, and a good deal of thought was given to planning and design in public and domestic settings. They were not monuments of great taste but then neither are our own museums. The porticoes of Pompey's theatre probably represented the lowest ebb; there was some good things in the way of tapestries and pictures but the statues seem to have been mostly a collection of sculptural curiosities, among them a certain Alcippe giving birth to an elephant. I am sorry I cannot illustrate it.

The great need was for expertise, especially towards the end of the Republic when the market was contracting, and acquisition became increasingly difficult. The general level of connoisseurship was low, and we are reminded of the cousin of young Mr. Primrose in the *Vicar of Wakefield* whose connoisseurship was based upon strict adherence to two rules—'This one, always to observe that a picture might have been better if the painter had taken more pains and the other always to praise the work of Pietro Perugino'. The trouble was that the Romans never produced a decent art-historian though they produced a few respectable art-archaeologists. They were, of course, as everyone knows very frightened of Art with a capital 'A'. My colleagues at the British Museum could, of course, have provided the antiquarian expertise that was hard to come by. Even Verres had needed his learned agents, his 'hunting dogs' as Cicero calls them and later on a certain Avianius Evander had a long career as art agent-cum-restorer, the Cavaceppi of his day. It was a very tricky market to be involved in, witness the recent revelations about the Piombino Apollo which seems to be not an archaic statue but a clever fake made in the first century for the Roman market. Another favourite trick was to put bogus inscriptions on statues. 'The ancient virtuoso' says H. Walpole, referring to the collection of old statuary at Wilton, 'would be a little surprised to find so many of his contemporaries new baptised, where many

an emperor acts the part of scarcer Caesars'. On the contrary, he would not have been surprised at all: 'I hate false inscriptions on statues that don't belong to them', says Cicero to his friend Atticus.

Even generals and emperors were now buying rather than helping themselves and they needed advice. Presumably Augustus didn't get it when he bought Apelles painting of Venus from the people of Cos, for the owners managed to conceal its defects which soon became apparent later. You don't pay 100 talents for something which later falls to bits unless you are badly advised. I think, though, that my Museum colleagues would have been better off working for the Sothebys of the day which seems to have flourished in the old voting enclosure in the Campus Martius which had become a somewhat redundant building. As curators they would have been poorly paid with an obligation to guide the public round and some distinctly unpleasant consequences for dereliction of duty. The British Government does not insure its property, nor did the Roman, and for one of its prize possessions, the famous statue of a hound licking its wound in a temple on the Capitoline Hill it was enacted that the keepers should pay for its loss with their heads. When I was at the British Museum, and I daresay the same is true today, we did not carry rings with poison gemstones, as some of our Roman predecessors are known to have done.

And so I come to the third of my jobs, here at the Institute and I try to think how it would have fared in the atmosphere of Roman archaeology. We should have to eliminate immediately, and however reluctantly, the Prehistoric Department. While praising the technical perfection of their methods, the Romans would shudder at the waste of effort. The illusion under which they seem to labour, that they can make history out of chronology and comparative ceramics (and such things) would have frightened the Romans. Where are the heroes, where are the men, where are the cities? Even when we indulged those wistful backward looks towards a golden age, we should have gained little comfort from the reconstructions of the life of primitive man which prehistoric archaeology provides. Much better the simple picture of the past unconfused by statistics and cultural sequences. They would take away our kings and heroes and replace them by stones and graves and artifacts. Reject our cherished mythology, give free rein to the archaeologist, and look at the picture we have of our early Roman history. Quarrelsome archaeologists have replaced our kings and we seem to know less than we ever did. The Environmental Department, on the other hand, is something that I think we could have used. We Romans were always rather good at handling environments. In a metaphorical sense we may have made a few deserts but in a practical way we did more than most to reclaim them. We would have been, and indeed are, very glad to learn from our mistakes, which we made frequently though no one seemed (nor seems) to be able to decide which ones caused our downfall. We would therefore welcome Professor Dimbleby not only as our practical advisor but as one from whose theoretical studies we could learn much for the future.

We are of course very happy indeed to cooperate with the Western Asiatic Department; they too know what archaeology is about. It is about men and cities and

strange languages. After all, this is where much of our national heritage, though we don't talk about it in that sort of way, comes from; these strange oriental religions which we did so much to foster, and a lot of our art and even some of our institutions. This is all part of our inheritance, however much we may despise it. On the practical side how we would have loved Mrs. Conlon and her photographic department; what a difference her techniques would have made to recording our heroes. The *atria* of our houses would have blossomed like cricket club pavilions—verism, realism and all those other-isms that rightly or wrongly are attributed to us could have flourished. And Mr. Stewart, if he could have been persuaded into giving up his pencil for the sand and stylus we used to use in our diagrams, would be most welcome among us.

The Conservation Department would have been our most valuable ally. When the people of Cos sold us that white elephant Venus picture and it started to fall to bits, I am sure they would have saved it for us. The secret of Apelles varnish would not have remained a secret to them nor would they have failed us when we wanted to remove the gilding that Nero had applied to a statue of Alexander the Great, and ruined in the process. We could have used all their expertise. A doubt remains in our minds over those new scientific methods which Mr. Hodges practises. In the dating of our bricks, for example, even we moderns have yet to be assured that the method of thermoluminescence is superior to that adopted by our two pioneers of the study, which involved eating them. I admit it was a more destructive method, but then we were always reluctant to accept new scientific ideas.

So there is no doubt that the Institute of Archaeology, with all this knowledge, is an atmosphere in which Roman archaeology can flourish, but what about Roman Archaeology itself? What would we, as it were, have thought of ourselves? There are certainly some recent trends in Roman archaeology which would not have pleased us. Our archaeology, you remember, did not have much to do with history but we moderns have pressed much too close to the wake of the historian. The ancient historian, poor dear, has miserably few facts to play with and what facts he has have been carefully selected and predetermined for him by some good, bad and indifferent historians. So he has flattered the archaeologist into thinking that his job is to provide historical facts for the historian, which of course it isn't, although he can and does provide factual material which may, or may not, be historical as well. The danger is that we allow ourselves to be thought of as the technicians who dig and delve in the trail of the historian whether he is pursuing Tacitus across England or Caesar through Gaul. We wrestle with stratigraphy, study endless pots, classify the most unpromising bits and bobs, as we must. We could certainly justify being field archaeologists in this way—but nothing of the kind would justify us in teaching a degree in the Archaeology of the Roman Provinces which, as I say, I take to be synonymous with Roman Archaeology. We might produce high powered archaeological executives with the mastery of the techniques of modern field-work but that certainly would not constitute a liberal education.

No, in order to justify a degree in Roman Archaeology, we must go back, at least to some extent, to the Romans' own conception of archaeology as part of the background of liberal education, a relaxation from the pressures of big business or of making history. No one has the time, bewailed the elder Pliny, to be an archaeologist in Rome any more. We do have the time, 3 years of it, and we must see that it is well spent. We must certainly not look upon ourselves as stooges to the historians. We must, of course, learn the techniques of the archaeologist; we are likely to need them all. In our Department at present we have one student who is excavating and recreating Roman Dorchester, another who intends to follow Pliny to Bithynia, and another who is tracing the Romans on Malta and Gozo. Mr. Hassall this summer will again pursue Praxiteles' Knidian Venus with more noble motives than she was often pursued in the past but with the same dedication. And all of them, I am sure, will be keenly aware of Roman history which is an essential part of our studies. But they will also, I hope, relax enough to think what archaeology, especially Roman archaeology, is about. It may be relevant to the historian to know that Falernian wine appears in Diocletian's price edict; it is just as important to the archaeologist to know what Falernian looked and tasted like. We have the right to be interested in things which are often irrelevant to the historian. One gets friends amongst the ancients who never did, nor indeed could have made any impact on history. I like one Tiberius Flavius Eutropus, simply because he commanded the good ship Venus as an inscription records. I like the honest silversmith, L. Canuleius Zosimus, who died young but was never rude to anyone unless his master told him to and never stole silver, and I grieve with the family of the poor boy who fell off the scaffolding while fitting tesserae into a ceiling mosaic. This is where archaeology scores; as Norden wrote in his introduction to an edition of Mommsen, who would have been an archaeologist in the best Roman sense except for his great urge to be involved and his legalistic mind, 'the stones spoke to him; they informed him of the special life of the provinces. The so-called little people, the honourable artisans, workers in industry, officials of the little towns, purse proud parvenus'. The historian is interested in only one crossing of the Rubicon that I know of. We are interested in everyone who crossed the Rubicon, how they got across and even those who fell in. Ours is a truly human study with very few axes to grind. It ought to be a perfect liberal education, and if we have the right people involved in it, it certainly will be.

And I should like to put in a personal plea. My own interests lie in the areas of Roman art and architecture, and I would like to see these two aspects of Roman archaeology genuinely re-integrated in our studies. In classical archaeology this has happened. Classical archaeology has accepted its new disciplines, but has not rejected its old image. The time has come for Roman archaeology to do the same. There is no need to be afraid of the art-historian. If it would ease the minds of archaeologists, I would say that, in fact, the Romans would never have produced an art-historian, and that Roman archaeology has never produced one either. When a art-historian did get involved in Roman art some 60 years ago, it made a revolution from which we are only

just recovering. It may happen again, but in the meantime all we have are what may be called art-archaeologists who are not essentially a different breed from other kinds of archaeologist. One can be sure absolutely that, *pace* the Professor from the Low Country, Roman art presents very little danger to the future of archaeology when one considers that the nearest the Romans ever got to a word for a 'work of art' was *ornamentum*.

And we should not forget, when we have established the independence of our own discipline and defined its areas, that the historian needs us a good deal more than we need him. From the end of the 16th century historical scepticism has persuaded people that archaeological and non-literary evidence is a firmer basis for history than literary evidence and, wrong as this may be, there is no doubt that the literary sources need constant checking against archaeological evidence. How, for example, should we judge Roman architecture of the time of Augustus—and at no time was architecture so historically significant—if we had only Vitruvius who, for all his virtues, never understood the contemporary scene. How can the historian reconstruct the aims and ambitions of the politicians of the last two centuries B.C. unless the archaeologist enables him to recreate the thoughts of their leisure hours? I may at times have given the impression that I think Roman archaeology to be a frivolous pursuit. On the contrary, it is only through our studies, of the cities, of the country, of the camps, of the great buildings, of the arts, that we shall learn the lessons of the successes or failures of Roman society.

We can only achieve this if we remain as closely allied to classical studies as possible so that we can take full advantage of the unique combination of an outstanding literature and rich material remains. We are committed to being out on a limb. We have been there ever since Hippias of Elis and the only chance we ever had of being re-integrated was lost, probably in 1855 when Oxford tried to get Sir Charles Newton who was the best classical archaeologist of his day to be Professor of Greek, and failed. But we have to see that we are as closely connected with classical studies as possible. We must avoid the self-inflicted trap, common to new disciplines, of wanting to be different, of over-stressing our practical skills or our services to the historian, of nervously avoiding some of the branches of our study which belonged to us when we were part of classical archaeology. The Roman archaeologist who can picture Cicero designing his Tusculan villa, reconstruct a day in the life of a Pompeian baker, drift around the quays of the harbour at Ostia, imagine Rabirius designing the Imperial Palace on the Palatine or Hadrian reflecting on the British among the fountains of his Serapeum at Tivoli, or visualise the life of one of his auxiliaries on the British Wall, has nothing to fear. He is something of a historian, something of a classical scholar, but first and foremost an archaeologist. He will also have a vivid understanding of human nature. Unlike the historian he will not have to be too concerned about the goodness or badness of the Roman Empire, still a period which people love to hate. He is concerned with the people in many parts of the world subjected to that particular form of government and he can recreate them with an immediacy which is not possible

in the study of any other ancient people. If he is trained in this Institute he will also be able to rely on the best modern techniques which the archaeologist uses to extend his sum of knowledge.

So, ladies and gentlemen, if we can avoid the pitfalls we shall have a liberal education to offer in this field. We shall also contribute to answering many questions which need to be asked, and perhaps have not been asked enough, about the Roman Empire. We want to know—to take a couple of random questions—what psychological attitudes to environment or foreigners affected the energy of the Romans? What changes took place in diet or clothing, or taste? These are questions which only the Roman archaeologist in the widest sense can answer. It is well for the future of our studies that they have this vast range. I think we can reasonably claim that no other branch of archaeology offered in this Institute is likely to give so broadly humane an education as ours.

The present state of research into the problems of Celtic oppida in Central Europe *

by DR. JIŘI BŘEŇ
(National Museum, Prague)

It is the aim of this lecture to inform, though in brief only, about the present state of knowledge of the Late La Tène culture in Central Europe, and particularly about the problems of the 'urban civilization' of Celtic *oppida*. The first part of the lecture contains a list of *oppida* on the territories of Czechoslovakia, Hungary, Austria, Yugoslavia and Germany, which are currently being excavated. The second part deals with problems of methodology, chronology and also with cultural and social problems.

The best known *oppidum* in Czechoslovakia is Stradonice near the district capital of Beroun in Central Bohemia. This *oppidum* is one of the most important and prolific sites from the first century B.C. not only in Czechoslovakia but in the whole of Europe. Judging by the amounts and significance of the material found there Stradonice may have been one of the centres of the Caesar's 'fourth' part of Gallia. Unfortunately, the subsequent fate of this *oppidum* was rather sad, because in the modern times, after a hoard of golden coins had been found there in the second half of the 19th century, the whole area of the *oppidum* was turned upside down. At that time Stradonice became a 'mine of antiquities' and there is perhaps not a single large museum in Europe, whether in St. Germain en Laye, Berlin, Budapest or Vienna, that does not have in its collections some objects from this *oppidum*.

The material from Stradonice has given its name, perhaps not entirely correctly, to a whole culture of the 1st century B.C. This is the Central European Stradonice Culture. It is an interesting fact that, with the exception of Pič in his publication, the exact meaning of this term has not yet been explained and specified by any scholar. Pič was a historian and consequently he based his research work and all conclusions upon historical facts, whilst archaeological material and sources were for him only a supplement to his historical research and conclusions. Almost 70 years have elapsed since the publication of Pič's work, but it still continues to be a fundamental source of information about the Stradonice *oppidum*. Pič's historical conclusions—in his view Stradonice was the former Marobuduum, the centre of Marobud's German Empire—are not today accepted by all Czechoslovak archaeologists. Conclusive evidence, both chronological and that related to material culture, has not yet been found here. It would

* Lecture delivered at the Institute on November 30th, 1970.

be reasonable to expect rich and numerous finds of weapons at this centre of the German empire, where the ruling power was based upon a social class of military aristocracy, but at Stradonice, similar to other Celtic *oppida*, finds of weapons are very rare. Most of the finds, as we will see later, are chronologically earlier than the Germanic period. The area of the Stradonice *oppidum* measures some 80 hectares¹.

The most extensive *oppidum* in Czechoslovakia is Hradiště near Závist, which is situated on the southern outskirts of Prague. This site covers an area of more than 170 hectares and the ramparts have a total length of more than 9 km. Závist belongs to a group of large *oppida* represented by Manching near Ingolstadt (300 hectares), Kelheim near Regensburg (600 hectares), or Heidengraben near Urach (over 1,500 hectares). It is situated at the confluence of the Vltava and Berounka rivers and was apparently a strategic fort of first-rate importance in Central Bohemia, not only in La Tène times but from the Eneolithic to the early Slavonic period. It is interesting that this *oppidum* was known as early as the renaissance period. Since 1964 the Archaeological Institute of the Czechoslovak Academy of Sciences has been conducting systematic excavations here. At present we have good knowledge of the individual periods or stages of settlement, starting from the Neolithic and continuing through the Hallstatt and La Tène periods to the so called Prague type of early Slavonic culture. The excavations were also concentrated upon the structure of the gate in the south-western part of the *oppidum*, where three settlement phases of the Late La Tène period have been identified. Excavation works at the highest spot of the site have uncovered an extremely complicated situation. The main problem is the interpretation of the structures found, while the chronology is relatively well known. The structures are dated by finds of pottery to the transitional Hallstatt—La Tène phase, in absolute chronology to the 5th century B.C. These are foundations of a structure, built in stone and measuring some 12×9 metres. The original height of the masonry has not yet been ascertained, because the foundations of the walls have not yet been uncovered. The present height is 3.5 metres and will certainly be more. Dr. L. Jansová of the Archaeological Institute of the Czechoslovak Academy of Sciences in Prague, who conducts the excavations at Závist, interprets this structure as the foundations of a building, perhaps a church².

Some 20 km. south of Závist there is another Celtic *oppidum* at Hrazany near the town of Sedlčany. This site lies on a spur between a small brook and the Vltava River. The most important contribution to our knowledge of Celtic life from the Hrazany

¹ Fundamental works about the Stradonice *oppidum*: J. L. Pič, *Starožitnosti země České II*, 2—Čechy na úsvitě dějin—Hradiště u Stradonic jako historické Marobuduum (*Bohemian Antiquities II*, 2—'Bohemia at the Dawn of Historic Times—Hradiště near Stradonice, the Historical Marobuduum'), Prague 1903; J. L. Pič, *Le Hradisch de Stradonitz en Bohême* (traduit du tchèque par Joseph Déchelette), Leipzig 1906; J. Břeň, 'Význam spon pro datování keltských oppid v Čechách' ('The signification of brooches for dating of the Celtic *oppida* in Bohemia'), *Acta Musei Nationalis Pragae XVIII*—A, No. 5, Prague 1964.

² Fundamental works dealing with the Hradiště *oppidum*: L. Jansová, Hradiště nad Závistí. Výzkum brány na JV úpatí Hradiste v roce 1966—Die Erforschung des Tors am Hradiště, oberhalb Závist', *Archeologické rozhledy XIX*, 1967, p. 597 ff. (With a bibliography of works dealing with the Hradiště *oppidum*).



Fig. 1. Stare Hradisko near Prostějov, Moravia. Excavated by the Archaeological Institute of the Czechoslovak Academy of Science in Brno from 1967-68. The metalled streets are lined with rows of houses.

oppidum, where the excavations were finished about four years ago, is the recognition of three phases of the *oppidum*'s development in the La Tène period in the first century B.C. This knowledge is based upon stratigraphy and the analysis of pottery. Very important is also the establishment of the types of settlement structures at Hrazany. Attention has also been given to a kind of farmstead, or enclosed area, each consisting of a house and outbuildings with a well³.

To the south of Hrazany, on the bank of the Vltava River, there is the *oppidum* at Nevězice near Orlik. The 1949–50 excavations were concentrated mainly upon the rampart and its structure. Similar to the *oppida* at Třisov and Hrazany this is not a genuine Gallic wall, the 'muris gallicus', as we know it from Caesar's description found in his 'Commentaries on the Gallic War'. The face of the wall is built in the dry-stone technique and we find here vertical beams (unlike the 'muris gallicus' with horizontal ones), which are not connected with spikes. Such walls appear in Central Bohemia as early as in the late Hallstatt times and therefore it seems that this tradition in fortification technique continued into the Late La Tène times. The easternmost *oppidum* with a genuine Gallic wall is Manching near Ingolstadt, with remains of such a wall in the early horizon of the eastern gate⁴.

The Třisov *oppidum* is not discussed here in detail, because a small exhibition of Třisov material was arranged at the Institute of Archaeology in London, and a handbook is available which contains a description of the site and the problems of its excavation⁵. The most important results reached so far include first information about the fortification system, and second the establishment of two phases of development of the *oppidum*. The research is based on an analysis of archaeological material, mainly brooches and painted pottery. The results of the excavations suggest that Třisov may be one of the latest *oppida* in Czechoslovakia. It was founded around 50 B.C. and ceased to exist around the beginning of the Christian era.

The most extensive *oppidum* in Moravia is Staré Hradisko near the town of Prostějov. As early as in the 17th century this site was known to Comenius. The Archaeological Institute of the Czechoslovak Academy of Sciences recently resumed excavations here, which in 1934–6 were conducted by J. Böhm. The results of these excavations have not yet been published, but they may contribute substantially to our knowledge of the internal organization of the *oppidum*. In the future we may be able to say something more about the urban character of the site, the system of streets, types of structures, etc. The Staré Hradisko *oppidum* is well known for frequent finds

³ Fundamental works dealing with the Hrazany *oppidum*: L. Jansová, 'Die wirtschaftlichen Verhältnisse auf dem keltischen Oppidum in Hrazany (Böhmen)', *Ur- und Frühgeschichte*, Berlin 1964; L. Jansová, 'Hrazany, keltické oppidum na Sedlčansku-Hrazany, ein keltisches Oppidum an der Moldau nördlich von Sedlčany', Prague 1965.

⁴ Fundamental literature on Nevězice: B. Svoboda, 'Nové keltské oppidum v jižních Čechách-Nouvel oppidum celtique en Bohême méridionale', *Archeologické rozhledy* II—1950, p. 64 ff., p. 148.

⁵ Fundamental literature on the Třisov *oppidum*: J. Břeň, *Třisov, a Celtic Oppidum in South Bohemia*, Prague 1966.

of raw amber, which was transported from the Baltic Sea regions to the *oppidum*, which served as an entrepôt for the eastern Celtic zone⁶.

The second largest *oppidum* in Moravia is situated on the Hostýn Hill near the town of Holešov. This hill is one of the most famous pilgrimage places in Czechoslovakia. In clear weather the Hostýn Hill may be seen from Staré Hradisko and vice versa, though the distance between these two localities is about 50 km. The area of land between these two *oppida* belongs to the most fertile part of Moravia—the Haná Valley. Recently the Archaeological Institute of the Czechoslovak Academy of Sciences opened excavations here, which are concentrated mainly in the south-western corner of the *oppidum*. These excavations have already brought to light an in-turned gate ('Zangentor'), and remains of a well have also been found. The ramparts of the *oppidum* are preserved to a height of 8 m. Much damage to the archaeological remains at the site has been done by later medieval constructions. The results of the excavations on the Hostýn Hill have not yet been published.

Currently excavations are being conducted by the Archaeological Institute of the Slovak Academy of Sciences in Nitra of the so far largest *oppidum* in Slovakia at Zemplín near the city of Košice. This is the easternmost *oppidum* in Czechoslovakia and lies some 20 km. from the Czechoslovak/Russian frontier. The central part of the *oppidum* is a small fortified area covering some 4 hectares, around which there extends an unfortified settlement covering an unusually large area. Painted pottery was the main product of this site, which lies in a region that was in the past exposed to Dacian influences. Mention of the ethnic character of this *oppidum* will be made later⁷.

In the past several years another two *oppida* have been uncovered in Slovakia. Information about these two localities was made available for the first time on the occasion of an international symposium on Celtic culture in Central Europe, which was organized in Prague in September 1970. The reports read at this symposium will be published in the second or third part of *Archeologické rozhledy* in 1971. These two new *oppida* are at Pohanská near Plavecké Podhradie not far from the Slovak capital of Bratislava, and at Havránok near the town of Liptovská Mara, not far from the city of Liptovský Svätý Mikuláš. The Pohanská *oppidum* is very interesting for the large quantities of iron objects found there, such as anvils, scythes and spits, and also semi-finished stone sculptures, usually roughly hewn stones ready for finishing touches. However, no finished sculptures, particularly heads, have been found as yet. The Havránok *oppidum* is situated high up in the mountains near the High Tatras range, and it commands the whole Liptov Valley. Remains of human skeletons, probably sacrifices, have been found here in deep pits close to the dwellings. The Havránok

* Fundamental works dealing with the Staré Hradisko *oppidum*: Jiří Meduna, Staré Hradisko II, *Katalog der Funde aus den Museen in Brno, Praha, Olomouc, Plumlov und Prostějov*, Brno 1970; Idem, *Die keltischen Oppida Mährens* (Symposion Die Kelten und keltischen Oppida in Mitteleuropa und im Karpatenbecken vom 21.–26. September 1970), Praha 1970.

⁷ Fundamental literature on the Zemplín *oppidum*: B. Benadik, 'Die spätlatènezeitliche Siedlung von Zemplín in der Ostslowakei'. *Germania* 43, 1965, pp. 63–91.

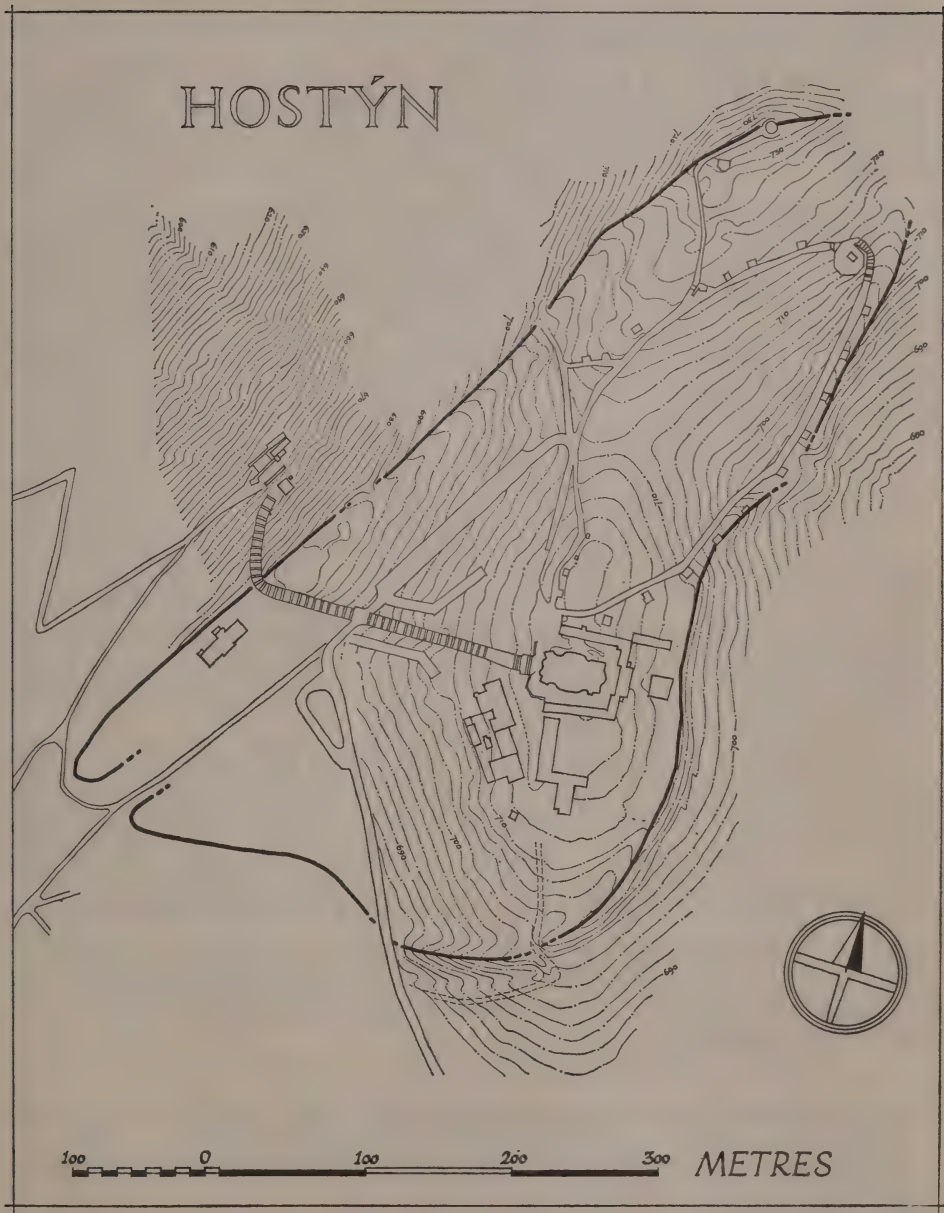


Fig. 2

oppidum is located in the central area of the Púchov Culture, whose precise ethnic character is still a matter of much dispute⁸.

In Austria excavations are being carried out at two sites. Their character is undoubtedly Celtic. The Dürnberg *oppidum* is near Hallein, some 25 km. south of the city of Salzburg, and the Magdalensberg *oppidum* is situated not far from Klagenfurt in Carinthia. At Dürnberg the settlement concentration is earlier and is dated to LA or LB, in absolute chronology to the fifth and fourth centuries B.C. From this span of time we have from the Dürnberg *oppidum* more than one hundred and twenty mask brooches. The existence of the Dürnberg *oppidum* and its prosperity were closely linked up with salt exploitation. In this respect Dürnberg resembles Hallstatt. Magdalensberg was apparently of the same importance as Norea, the capital of the vassal state of Noricum. Early Roman structures have been found here standing upon a Late La Tène settlement, as we may see from the finds of Late La Tène and especially Nauheim brooches as well as pottery. The La Tène horizons have been unfortunately disturbed by the monumental early Roman churches. Celtic elements may also be found in some early Roman inscriptions, particularly proper names. Another two *oppida*, Kürnberg and Gründberg near the city of Linz, have not yet been excavated.

In Hungary recently much attention has been devoted to the *oppidum* on the Gellért Hill in the capital of the country, Budapest. The Gellért Hill settlement is contemporaneous with the Tabán settlement, which is situated at the foot of the Gellért Hill. Some Hungarian scholars think that this place was inhabited by the Celtic tribe of Eravisci. Their theories are based for the most part upon finds of coins. Some remains of Late La Tène settlement have also been found beneath the foundations of the Romanesque basilica in the city of Esztergom⁹.

The situation in the Carpathian Basin, especially in the eastern and southern parts, is somewhat different from that in Central Europe. We do not know for certain whether the fortified settlements along the lower course of the Drava, Sava and Danube rivers are really *oppida* as we know them from Central and West Europe. Celtic tribes on the present territory of northern Yugoslavia are mentioned in historical sources, for example the Scordisci; but in the north of Yugoslavia their culture was forced out by the local Illyrian population. In present-day Rumania it was strongly influenced by Dacian elements. Here, the problem of the precise ethnic character is of great importance, because we do not yet know which of these regions, if any at all, were settled by the Celts¹⁰.

⁸ Fundamental literature on the Pohanská and Havránok *oppida*: J. Paulík, 'Predbežné výsledky výskumu keltského oppida v Plaveckém Podhradí-Vorbericht über die Ausgrabung im keltischen Oppidum von Plavecké Podhradie', *Archeologické rozhledy* XXII (1970), pp. 544-555; K. Pieta, 'Zisťovací výskum v Liptovskej Mare-Feststellungsforschungen in Liptovská Mara', *Archeologické rozhledy* XIX (1967), pp. 618-631.

⁹ Fundamental literature on Hungarian *oppida*: E. Bónis, *Die spätkeltische Siedlung Gellérthege-Tabán in Budapest*, Budapest 1969.

¹⁰ Fundamental literature on the Celts in Yugoslavia: Jovan Todorović, *Kelti u jugoistočnoj Evropi-Die Kelten in Süd-Ost Europa*, Belgrade 1968.

As far as West Germany is concerned, only one *oppidum* has been excavated systematically. This is the Manching *oppidum* near the city of Ingolstadt. It covers an area of some 300 hectares and belongs to the group of very large *oppida*. At present, unfortunately, the excavations must be carried out in great haste, because an airport is under construction in the area of the *oppidum*. Excavations of the eastern gate have already been finished and work on the inner part of the *oppidum* will continue in 1971¹¹.

After this short enumeration and description of the *oppida* it will be proper to mention, though in brief, some problems of importance related to this period. First, it is necessary to have a clear idea of the term '*oppidum*' and its meaning. The theories of German archaeologists are based upon the definition of Caesar, though it is in many respects rather hazy. Caesar uses for many *oppida* the term '*urbs*'. Some *oppida* in France, for example Bibracte, Gergovia, Alesia and others, resemble very much those further east, though some differences do exist. For this reason the term '*oppidum*' should be used, perhaps, only for Celtic settlements of the first century B.C., which were fortified and where there is found conclusive evidence of concentrated manufacture of pottery, iron, glass, or coin minting. The term '*oppidum*' will be then defined more precisely chronologically, ethnically, culturally and also militarily. Chronologically the *oppida* are Celtic settlements dating from the first century B.C., while in French literature the term '*oppidum*' is used for any settlements dating from the times following the Hallstatt period. From the viewpoint of ethnic character we regard as *oppida* only those settlements that were occupied by the Celts; Dacian settlements, for example, cannot be termed *oppida*. Culturally, small fortified settlements covering an area of some four hectares and with a defensive function are not called *oppida*. From the viewpoint of the military function and role we must clearly realize the difference between the first 'urban' formations in Central Europe and present-day villages. This is an oversimplified definition, but such is the drawback of any definition. The decisive criterion and yard-stick is the importance of the *oppidum* as a manufacturing and 'industrial' centre as seen against the background of the extensive agricultural hinterland. *Oppida* are called for this reason the first Central European towns.

The study of the Late La Tène culture in Central Europe is beset with a number of methodological problems. The Celtic culture of the fourth to the second century B.C. is represented mainly by archaeological finds from graves. Some ninety per cent of all finds from this timespan are from graves, while the same culture of the first century B.C. is represented almost wholly by settlement finds. These finds are from centres of urban character, the so-called *oppida*. It is also very interesting that in almost the whole of

¹¹ Fundamental literature dealing with the Manching oppidum: W. Krämer, 'Manching II', *Germania* 40 (1962), pp. 297-317; H. J. Kellner, W. Krämer, O. Kunkel, O. Rochna, R. A. Maier, J. Boessneck, 'Neue Funde aus dem Oppidum von Manching', *Germania* 39 (1961), pp. 299-383; I. Kappel, *Die Graphittonkeramik von Manching*, Wiesbaden 1969.

Europe the *oppida* are not associated with cemeteries. A change in the burial rite may be an explanation. Consequently we may receive information about the early phase of an archaeological culture from sources different from those that supply information on the late and final developmental phases.

Dating is one of the most important and widely discussed problems related to the development of the *oppida*. It should not be limited only to the establishment of the lower and upper time limits of their existence, but we should also try to get some information about the details of their development. Some German archaeologists, represented by Professor Krämer, divide the culture of the first century B.C. into three stages. These are described as LD 1, LD 2 and LD 3. According to Professor Filip the *oppida* belong to his fourth and fifth stages of the development of the La Tène culture. Filip terms the fourth stage the 'prime of the *oppida*' and dates it to the time-span of 125–50 B.C. The fifth stage he terms 'the fall of the *oppida*' and this is dated from about 50 B.C. to the beginning of the Christian era. L. Jansová bases her conclusions on pottery finds and divides the development of the Hrazany *oppidum* into three stages. However, she does not give any detailed information about the absolute chronology of the settlement.

On the basis of the material from the Třísov *oppidum*, including the stratigraphy of the huts and analysis of brooches, we may divide the *oppidum's* development into two stages. The beginning of the *oppidum's* existence is dated to the middle of the first century B.C. It seems, therefore, that the *oppida* in Central Europe may not have appeared and gone out of existence at the same time. The beginnings of the Třísov *oppidum*, for example, belong to Filip's fifth stage, which is described by him as the downfall of the *oppida*.

The present author thinks that the downfall of the *oppida* may be dated with much more accuracy than their beginnings. The establishment and dating of the beginnings of the *oppida* will depend, as the present author thinks, upon more detailed study of the latest phase of Celtic inhumation and cremation burials. Very important for this work are the chronology of brooches of the so called middle La Tène, dating of glass bracelets, girdles with punched decoration, and anklets with plastic spiral decoration. A comparison of this material from the latest Celtic graves, which disappear in Central Europe at the turn of the second and the first centuries B.C., with material from the *oppida* will result in the elimination of identical specimens and the remaining items will then be ascribed to the late Celtic phases.

Research work into the Late La Tène culture in Central Europe must also take into account ethnic problems. It is necessary to make a distinction between Celtic culture and elements ascribable to other ethnic groups; Germanic ones in Central and West Germany, in North Bohemia, the Dacian ones in East Slovakia, and to the remainder of the original population, for example of Illyrian extraction in the northern part of Jugoslavia.

It is impossible to mention in a short article all problems related to the Late La Tène culture in Central Europe. Space permits only the inclusion of such problems

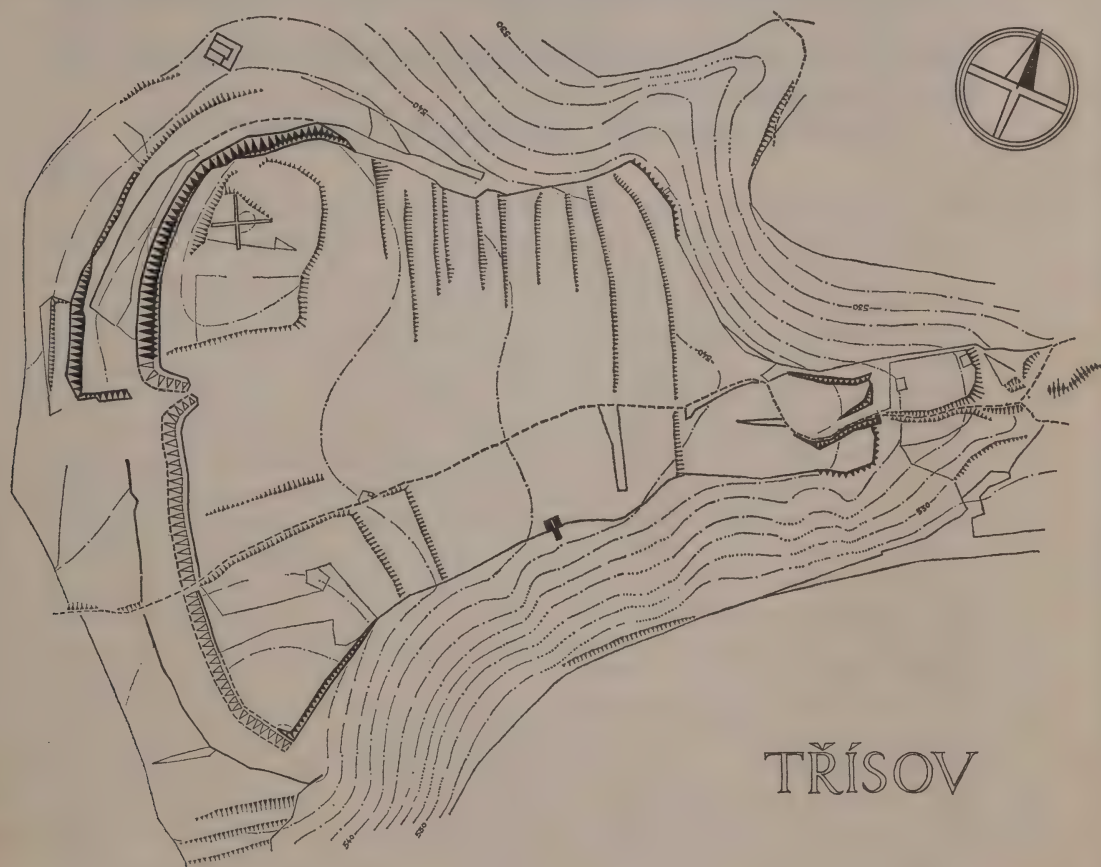


Fig. 3. Surface area measures 26 hectares

that are linked up with the general character and features of this culture and period. The excavation of any *oppidum* carries with it many specific problems related to economy, social development and structure, the function of the *oppidum*, and a number of others. The recent fifteen years are characterized by great and remarkable progress in the study of the Late La Tène culture. Czechoslovakia lies in the heart of Europe and consequently it occupies an important position among the countries interested and engaged in this kind of research work. The numerous large-scale excavation projects in Czechoslovakia will contribute a great deal to a better understanding of the culture of the Celts as a whole.

I am grateful to Mr. R. N. L. B. Hubbard for drawing figures 2 and 3.

Preliminary Survey in N.W. Arabia, 1968

by P. J. PARR, G. L. HARDING AND J. E. DAYTON

with contributions by A. F. L. BEESTON AND J. T. MILIK

PART I: ARCHAEOLOGY (continued)*

Meda'in Salih

A few hours spent in Meda'in Salih (ancient Hegra), in torrential rain, was sufficient to demonstrate again the thoroughness and accuracy of the work done seventy years ago by Jaussen and Savignac. The main interest of the site lies, of course, in the Nabataean rock-cut tombs, similar to those of Petra, except that the most ornate of the types found in the capital city are not represented. The Meda'in Salih tombs also differ from those of Petra in that many of them bear dated inscriptions, from which it is clear that the heyday of the site was in the 1st century A.D. This is confirmed by the sherds picked up at the site, the majority of which are of standard Nabataean and Roman types, well known from Petra and other Nabataean settlements and mostly dating to this century. A few of the painted fragments are earlier, however, having that delicate style of painting which is now known, from the recent excavations at Petra, to be characteristic of the 1st century B.C.¹ The pottery does not include anything which is readily identifiable as belonging to the 3rd and 2nd centuries B.C., and it therefore remains unknown whether Meda'in Salih was occupied by the Nabataeans as early as Petra and other sites in the north. However, that there were early visitors to the site is proved by the discovery of a small faience amulet (Fig. 2) which (according to Dr. D. M. Dixon of the Department of Egyptology, University College, London, who has kindly examined illustrations of the piece) is not earlier than the time of the XXII–XXIIIrd Dynasties and might be as late as the Ptolemaic period. A few sherds (Fig. 3, nos. 1–4) suggest resemblances with fragments from Khuraybah, and may be of the pre-Nabataean period, although it should be stressed that none of the Khuraybah painted ware was found at Meda'in Salih, and the plain sherds in question could perhaps equally well be medieval or even later.²

*The first section of this report appeared in the Institute of Archaeology *Bulletin* Nos. 8 and 9, 1968–9 (1970), 193–242. The authors wish to acknowledge with gratitude a grant from the Palestine Exploration Fund towards the cost of printing.

¹ See now P. J. Parr, 'A Sequence of Pottery from Petra', in *Near Eastern Archaeology in the Twentieth Century. Essays in Honour of Nelson Glueck*, ed. J. A. Sanders (1970), p. 370.

² An important pre-Nabataean occupation of Meda'in Salih is indicated by the re-used building stones with Minaean inscriptions found there by Jaussen and Savignac. In connection with the amulet described above, it will be remembered that the activities of Ptolemy II in N.W. Arabia are well documented (see Tarn, *J.E.A.* XV (1929), 9–25), while the Tayma stele bears witness to the presence of a priest of Egyptian parentage in the Hejaz in the 5th century B.C.

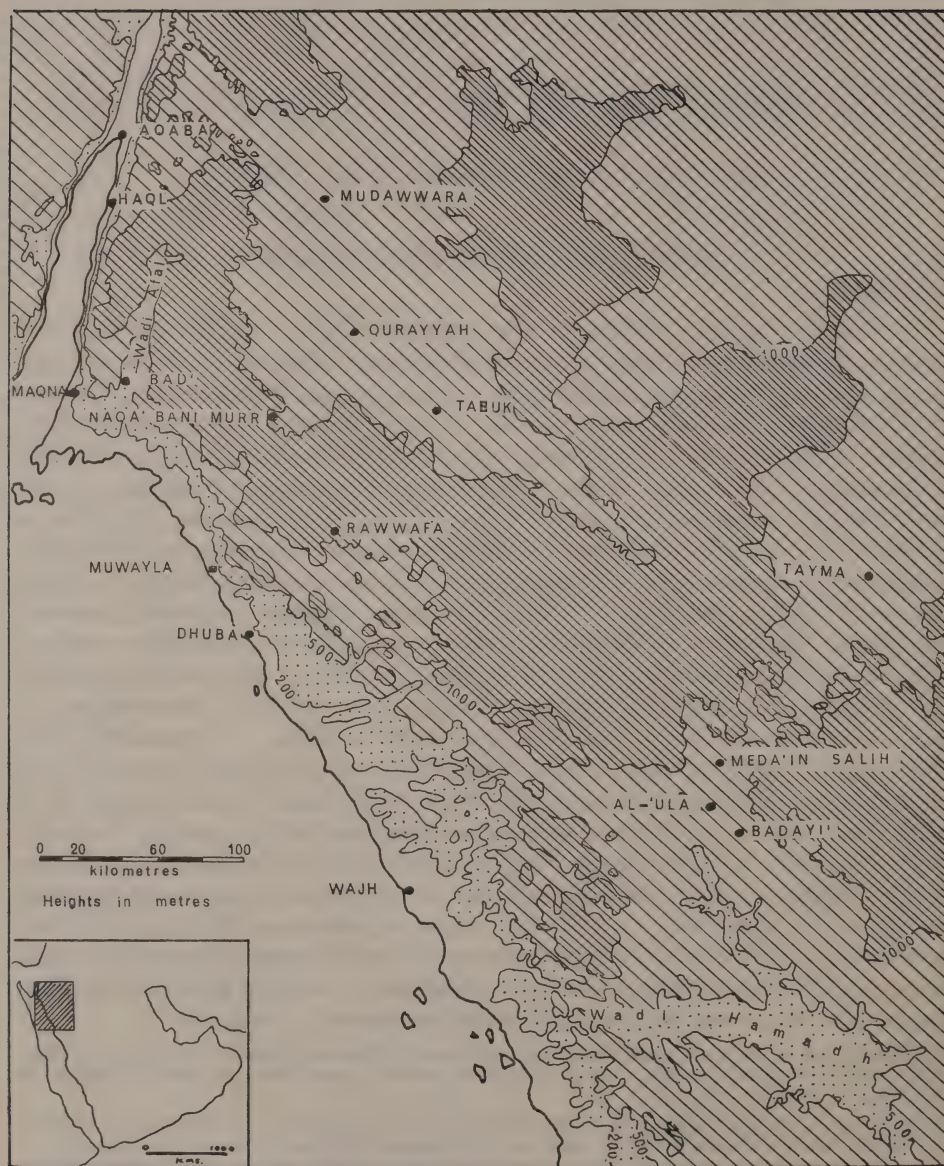


Figure 1 Map of N.W. Arabia



Fig 2 Amulet from Meda'in Salih (MS.8). (1:1)

Roughly square plaque pierced for suspension, light greenish-blue faience, bearing two Egyptian hieroglyphic signs enclosed with frame border. If the signs are really an Egyptian word (and were not merely chosen at random), the reading is 'sm(-priest)'. As to date, it is difficult to be very specific; the piece is certainly not earlier than the time of the XXII-XXIIIrd Dynasties and might be as late as the Ptolemaic period.

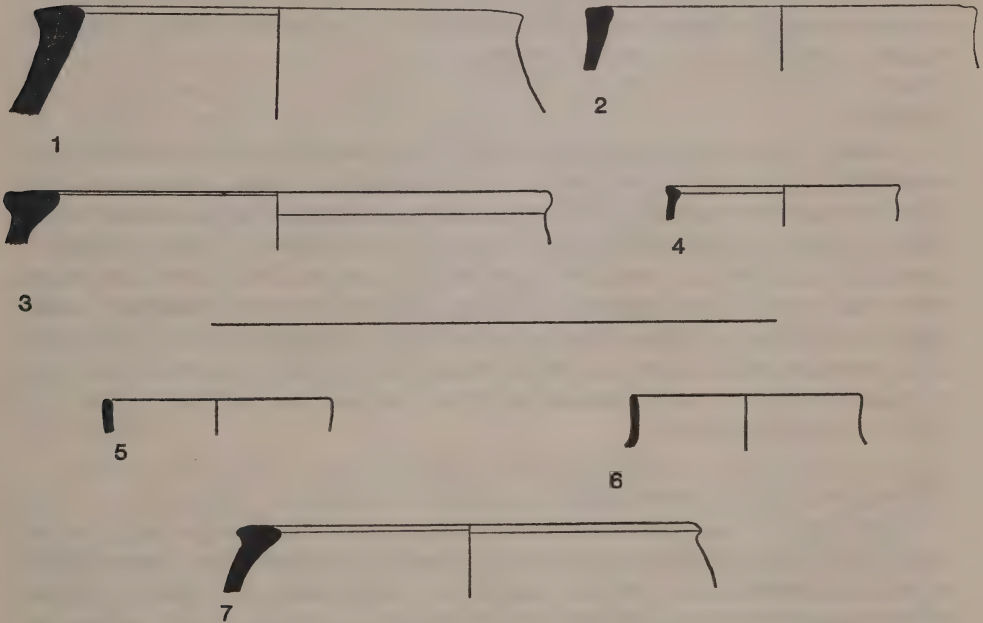


Fig 3 Pottery from Meda'in Salih and Mantar Bani 'Atiya (1:5)

<i>Meda'in Salih</i>	<i>Description</i>	<i>Reg. No.</i>
1	Very heavy dark grey ware, large white and dark grits. Surfaces fired buff. Dark red-purple slip inside and outside, worn and discoloured. Handmade.	MS.1
2	Rough gritty grey ware; pale green slip all over. Very rough surfaces. Badly formed. Handmade.	MS.2
3	Coarse grey ware, fired red on surfaces. Dirty white wash outside.	MS.3
4	Buff sandy ware with thickish slip, red inside and grey-brown outside and on rim. Rough sandy surfaces.	MS.7
<i>Mantar Bani 'Atiya</i>		
5	Coarse light red ware, grey core, largish black grits. Red-brown slip or wash inside and outside.	MBA.3
6	Similar ware. Grey-brown slip or wash inside and outside.	MBA.2
7	Similar ware. Brown slip or wash inside and out.	MBA.1

Meda'in Salih is less than 15 kms. north of Khuraybah, and occupies an analogous position on the main north-south route. It is, however, much less hemmed in by the sandstone mountains than Khuraybah and lies in a broad basin rather than a valley (Plate 1); the mountains in the immediate vicinity are much broken into isolated stacks and peaks, often weathered into fantastic shapes. It thus presents an appearance very different from that of Petra, despite the comparable architecture. The Meda'in Salih basin is low-lying and sand-filled; it is a collecting area for rain and floods, and was occupied by great sheets of water and mud at the time of the expedition's visit. Erosion has removed practically all traces of the free-standing town which must have existed in Nabataean times; there are no monumental remains visible, as there are at Petra, although where an occasional mound of débris has escaped erosion, and where an occasional pit has been dug by the local bedouin, a few traces of structures (Plate 2) remain to testify to the ancient occupation.

Shirawan

About 40 kms. along the motor track which leaves the al-'Ula valley by the Wadi Mu'tadil and makes for Tayma, a little beyond the Umm 'Adir pass and the Ri' al-Mazzaz, is a spot amongst the sandstone peaks and the high mountain basins known locally (according to a bedouin informant) as Shirawan. It does not appear to have been visited by Jaussen and Savignac (whose route from Meda'in Salih to Tayma ran a little further to the north³) or by Philby. The spot forms an attractive camping place, and has been so used over the centuries, judging from the number of graffiti and rock drawings which adorn the neighbouring rocks. Some of the earlier of these (Lihyanite, Thamudic and Nabataean) were recorded, and are published in Part II of this report (page 49 below).

Mantar Bani 'Atiya (Tuwaiyil Sa'id)

Although Tayma—the city which, for a short time in the 6th century B.C., was the residence of Nabonidus of Babylon—did not itself fall within the area covered by the expedition's permit, a short visit was made to its vicinity, and one small site recorded. This is an isolated watch tower (*mantar*) situated on an outcrop of rock overlooking the Tayma Basin from the north-west, about 8 kms. from the oasis itself; it lies just off and to the right of the asphalt road leading to Tabuk. The tower (Plates 3 and 4) is 3.75 m. square, and the highest surviving part of its walls stands 3.00 m. high. Its interior is a mass of fallen débris, and no internal divisions can be discerned. The walls are of dry masonry, composed of roughly squared blocks of sandstone, varying considerably in size, but generally of long, thin proportions. The coursing is very irregular and small stones are used freely for levelling and for filling interstices. (This masonry is similar to that of the ancient walls of Tayma itself, so far as one can judge from the photographs published by Jaussen and Savignac.⁴ It should be noted,

³ See their plan, *Mission Archéologique en Arabie*, II (1914), Plate LVIII.

⁴ See, for example, *ibid.*, plates LXIII, 2 and 3; LXIV, 1.

however, that the most distinctive feature of this masonry, the thin slab-like character of the blocks, is more likely to be a result of local geology than of a uniform masonry tradition.)

The walls of the tower are covered with Thamudic and Taymanite texts, which do not seem to have been copied previously. They are published in Part II of this report, below. The earliest texts probably date to the 6th or 5th century B.C., but there is no sure way of telling whether they were carved while the tower was still in use or after it had been abandoned. A few sherds were picked up amongst the débris (Fig. 3, nos. 5–7); one of them, the rim of a hole-mouth jar, might have affinities with similar Palestinian vessels of Iron Age II.

There is some confusion over the modern name of this site. The name given locally was Mantar Bani 'Atiya, and Philby also records a site of this name in the vicinity of Tayma.⁵ But to Philby the name refers to a larger fort, c. 25 × 12 m. in size, with small corner turrets, and this ruin was not seen by the present expedition. It seems likely that the small *mantar* described here corresponds to that located by Philby at a spot called by him Tuwaiyil Sa'id, a few kilometres away from the larger fort.⁶ Philby's description of this tallies perfectly with the observations made by the present writers, including the presence of graffiti on the walls. However, the texts published by van den Branden⁷ as coming from Philby's Tuwaiyil Sa'id bear only a remote resemblance to those copied by us at Mantar Bani 'Atiya, and it therefore still remains doubtful whether the two monuments are in fact the same. It is likely that there are a number of these small watch towers and fortified posts surrounding the Tayma oasis, and that the names and sites have been confused.

Wadi Shiqri

The Wadi Shiqri is the main drainage system (usually dry) of an upland depression known as the Hufat az-Zawiyah, immediately north of Rawwafah. The track from Rawwafah to Tabuk passes through this area, which is barren and uninviting, but which provides relatively easy going for bedouin traffic (though not for wheeled vehicles). Several testimonies of this traffic were recorded by the expedition, including several groups of cist and cairn burials of unknown date; a number of stone circles (one of which is shown on Plate 5), similar to those described below (page 28) at the site of Naq'a Bani Murr; and a small Romano/Nabataean site (Plate 6). This (which does not appear to have been previously recorded and to which the name Khirbat ash-Shiqri may reasonably be given) is about 4 kilometres from the modern police post of the same name, and it may well have been its ancient predecessor. It lies in the shelter of a sandstone ridge, and consists of a collection of three or four separate square and rectangular structures, the largest being 7 m. square. The walls of the

⁵ H. St.J. Philby, *The Land of Midian* (1957), pp. 70–71.

⁶ *Ibid.*, pp. 102–3.

⁷ A. van den Branden, *Les Textes Thamudéens de Philby* (1956) vol. II, p. 62.

buildings (now nowhere more than two courses high) are about 0.75 m. thick, and are constructed of two faces of squared sandstone blocks, with a rubble core between, a style of construction well known at Petra and elsewhere. In one place a thick coating of good lime plaster has been applied to the outer face of a wall. There were very few sherds among the ruin, but these were all typically Nabataean and Roman of the 1st and 2nd centuries A.D.

Naq'a Bani Murr

Roughly half-way between Tabuk and the Gulf of Aqaba, on the western edge of the Hisma plateau, is an upland basin known as Naq'a Bani Murr, containing wells and water-holes, and providing a staging post on the track which, in ancient times as today, passed through it. The locality has been vividly described by Philby, who collected many inscriptions from the sandstone cliffs.⁸ A few of these were also photographed by the present expedition, and are mentioned in Part II, below.

In the same general area, in a flat tract lying on either side of the motor road, there was discovered a group of monuments which seem to have escaped previous notice. The monuments comprise five stone circles, varying in size and design, with other miscellaneous cairns and walls, spread over an area of perhaps one square kilometre. During the very brief visit made to the site no more could be done than photograph some of the remains, and until such time as a proper plan can be made of the complex of structures the following description, provisional though it is, must suffice.

All the circles are constructed of sandstone blocks, usually no more than 0.50 m. in length, picked up or quarried locally, and very roughly trimmed, if at all (Plate 7). They are only crudely laid, and the walls are typically about 0.80 m. wide and 0.50 m. high. The largest circle (I) is approximately 95 m. in diameter and is built on the east slope of a low hillock, around a natural outcrop of rock which forms a sort of spine running half-way across the circle (Plate 8). There is no clear sign of an entrance, but on the eastern side, just within and touching the wall of the circle, is a low mound of stones which might originally have been a small chamber or a grave. A short distance away to the east, outside the circle, are two small adjacent cairns, each about 2.50 m. in diameter and each with an upright block of stone on top (Plate 9).

Two hundred metres south of this large circle, and on the slopes of the same hillock, is another, smaller, circle (II) 20 m. in diameter, while further south still is a third (III), rather smaller still. The second circle also has a cairn just within its perimeter on the east, while there are two low circular mounds and a higher rectangular mound, as well as various straight lengths of walling, in the vicinity of Circle III (Plate 10).

By far the most interesting monument is Circle IV, just south of III, on the southern

⁸ Philby, *Land of Midian*, chapter 9 *passim*, especially pp. 196–198. In van den Branden's edition of these texts, the locality is called Abu Mukhrūq.

slope of the hillock (plate 11). This is, in fact, a double circle, the outer element being about 60 m. in diameter, constructed (rather like Circle I) around a low natural outcropping ridge. Within this circle, but not concentrically, is another smaller one; the two circles share a common wall for a short distance. In the centre of the smaller circle is a small cairn, while another cairn lies just outside the large circle, downslope from it. Finally, on the opposite side of the track from the remains just described there is a fifth circle (V) and some long, broken, lines of walling; this area of the site could not, unfortunately, be inspected in the time available. No pottery was found in the vicinity of these monuments, but several worked stone implements were picked up near the circles. These are of diorite, a stone available in the crystalline mountain country a few kilometres west of the site, and include two scrapers and a flake, unfortunately of indeterminate period (fig. 4).⁹



Figure 4 Stone implements from Naq'a Bani Murr (Scale 1:5)

1-3

2 scrapers and 1 flake: indeterminate period, diorite, with ochreous staining. Thick and irregular, plain striking platforms; the scrapers retouched along one edge on the upper face, and in one also along a second edge on the bulbar face; abraded by exposure, and slightly glossed along edges.

⁹ The authors are indebted to Mrs. Joan Crowfoot Payne, Dr. John Waechter and Mrs. Ingrid Azouri for commenting on these implements, and to Mrs Azouri for the illustrations of them.

Rough stone monuments basically similar to those at Naq'a Bani Murr have been noted on numerous occasions and in numerous places by travellers throughout the steppes and deserts of the Near East, and a complete catalogue would run to many pages. Just one hundred years ago the Ordnance Survey of Sinai drew attention to the presence there of cist graves, covered by cairns and set within circles, sometimes with adjacent straight walls, and sometimes occurring in groups.¹⁰ The pages of Jaussen and Savignac are full of references to mounds and cists, if not to circles, while Philby has given a detailed description of similar, more elaborate, stone structures in Najran.¹¹ More recently Raikes has discussed briefly the numerous cairns which occur south of Mecca, in Asir province, and has mentioned two stone circles with central cairns which seem, from his unillustrated description, to bear a close resemblance to the Bani Murr monuments.¹² Significantly, Raikes reports the finding of several waste flint flakes near these circles. In the south-east of the Peninsula, in Dhufar, Cleveland has noted a semi-circular stone structure, built against a low outcrop and enclosing a prominent rock mass.¹³ Returning to the northern Hejaz, we have already mentioned several circles in the Wadi Shiqri (above, p. 27), and near the site of Qurayyah (*Bulletin* nos. 8 and 9 (1970), p. 229). By far the most intriguing monument of this type, however, in our region, is that discovered and excavated by Miss Diana Kirkbride at Risqeh, in the Wadi Rumm, just over the Jordanian frontier and about 150 kms. north of Naq'a Bani Murr.¹⁴ Here, the arrangement of circle (about 20 m. in diameter) and cairns is similar to that of the present monuments, but the circle is composed of tall thin slabs of stone, carved in schematic human forms. Nothing like these occurs at any of the circles described in the present report, and the Risqeh monument remains unique. It is also the only monument so far published to provide any dating evidence; according to Miss Kirkbride it was destroyed before about the beginning of the Christian era, though it could have been built at any time between then and the 5th millennium B.C. The *terminus ante quem* for the Risqeh circle is an important addition to our knowledge of this class of remains, as also is the confirmation there that the circles had (as has often been suggested) a religious function. It would be unwise to assume, nevertheless, that all such structures were of the same date and purpose, and a great deal more investigation is needed before these 'rude stone monuments' of the desert are properly understood.

Al-Bad' (Mugha'ir Shu'ayb)

Along the eastern side of the Gulf of Aqaba the mountains rise almost sheer from the sea, and there is little in the way of a coastal plain. The caravan route from the Red Sea to Aqaba is forced to follow an inland route therefore, which it finds in the

¹⁰ *Ordnance Survey of the Peninsula of Sinai*, Part I (1869), especially pp. 194–196. See also the note on the Sinaitic stone monuments by Savignac in *Révue Biblique* (1907), pp. 398–408.

¹¹ H. St.J. Philby, *Arabian Highlands* (1952), pp. 220–224.

¹² R. L. Raikes, 'Field Archaeology in Saudi Arabia', in *East and West*, New Series, Vol. 17 (1967) pp. 30–31.

¹³ R. L. Cleveland, 'The Sacred Stone Circle of Khor Rori (Dhofar)', in *B.A.S.O.R.* 155 (1959), pp. 29–31.

¹⁴ Diana Kirkbride, *Archaeology*, vol. 22 (1969) pp. 117ff. and 188ff.

Wadi al-Abyadh, parallel to the coast. Along the coast itself the one or two small anchorages and oases are connected individually with this inland route, and not directly with each other; the most important of these harbours today is Haql in the north, with second place taken by Maqna, to which we shall return. West of the Abyadh subsidiary wadis cut through the granite mountains, and a route can be found towards the Hisma and eventually to Tabuk.

The lower part of the Wadi al-Abyadh (here called the Afal) consists of a broad triangle of relatively low and easy country, 50 kms. long and about 20 broad at its base, which rests on the Red Sea coast. Musil—whose treatment of the historical geography of the whole of our region is still the most comprehensive and scholarly¹⁵—considers this to be the fertile plain inhabited by the Bythemani, of whom Agatharchides of Cnidus wrote in his treatise on the Erythraean Sea in the 2nd century B.C.¹⁶ On the coast of the plain are several settlements at which ruins have been reported by Burton, Musil and Philby, and the oasis of 'Aynunah, with its anchorage at al-Kuraybah, has plausibly been identified with Ptolemy's Onne.¹⁷ At the opposite end of the plain, at its apex in the north, is the modern village of al-Bad', controlling the whole of the fertile area below it and guarding the north-south route. It is near this oasis that exists a group of Nabataean rock tombs, the Magha'ir Shu'ayb (the Caves of Jethro), as well as several large areas of ruins. The oasis is undoubtedly that known to the classical geographers as Madian.

Al-Bad' and its remains were first made known to western scholars by Rüppell,¹⁸ and have since been visited by Burton,¹⁹ Musil²⁰ and Philby²¹. All these visitors have, naturally enough, concentrated their attention on the tombs (Plate 12), and Philby in particular has given a detailed description of these, unfortunately illustrated by only two very poor photographs. Musil has little to say about the façades, but has left us photographs of some of them and sketches of one or two, and it is these sketches which have formed the only basis of later discussion, for example that by Grohmann.²² Yet Musil did not record or illustrate all the tombs, and his drawings are inaccurate in certain details.²³ During the course of the present expedition a full photographic record was made of the façades (e.g. Plates 13–15), and the new information concerning this architecture will be incorporated in the study of Nabataean civilisation which is being prepared by one of the present writers. Several graffiti inside the tombs,

¹⁵ Musil, *The Northern Hegaz* (1926), Appendix XI, pp. 302–313.

¹⁶ *Ibid.*, p. 303.

¹⁷ *Ibid.*, p. 312. Dussaud (*La Penetration des Arabes en Syrie avant l'Islam* (1955), p. 150–52) prefers to identify the ruins of al-Khurraybah with the Nabataean port of Leuce Kome, which most authorities place further south along the Red Sea coast, at Umm Lajj.

¹⁸ E. Rüppell, *Reisen in Nubien, Kordufan und dem peträischen Arabien* (1829), p. 219.

¹⁹ R. F. Burton, *The Land of Midian (Revisited)* 1879, Vol. 1, 79–111.

²⁰ *The Northern Hegaz*, pp. 108–120.

²¹ *The Land of Midian*, pp. 212–222 and 257–262.

²² A. Grohmann, *Arabien* (1963) pp. 56–59 and figs. 14–16.

²³ For example, the pilasters of the tomb shown in his fig. 43 are much narrower at the top than he draws them.

mentioned but not copied by Musil, were also recorded and are published in Part II of this report. An accurate survey of the necropolis remains a desideratum, however.

As for the other ruins at al-Bad', a sketch plan of these has been published by Musil,²⁴ though with very little descriptive text, while Philby's much longer description is difficult to follow because of the total lack of accompanying illustration. Our own sketch plan (Fig. 5)—based on compass bearings and paced measurements—does not altogether agree with Musil's, or with Philby's description, but it is presented here for what it is worth, until such time as a proper survey of the oasis can be achieved.



Figure 5 Sketch plan of ruins at al-Bad'

There appear to be four main areas of ruins in the valley near the Nabataean tombs (Plate 16). Immediately below them, to the south-east, is an area (some 650 m. × 300 m. in extent) of low mounds, no more than about 1 m. high, with occasional traces of mud-brick walls. They have been much worn down by flood waters, and on the eastern side the floods have scoured a channel, which now separates these ruins

²⁴ *Op. cit.*, fn. 15, fig. 38.

from what is clearly the site of a major settlement. This is a low mound, about 3 m. high, stretching for over a kilometre along the right bank of the Wadi Afal, and it corresponds probably with the southern part of the ruins called Hawra by Musil, and Malaqat by Philby. (To make matters more confused the name given to the present expedition for this site was Tawratiyah). There are traces of walls everywhere on the surface of the mound, some of them quite substantial; Philby's description is fairly detailed, but could not be checked during the present survey. The northern part of this mound is lower and more amorphous, and has, moreover, been built over in recent times, and this may partly account for the difficulty in collating Musil's plan with the present one.

Both Musil and Philby confidently identified these ruins with an important Nabataean city, and the discoveries of the present expedition fully confirm their view. In the yard of one of the modern houses a small fragment of a monumental Latin inscription, in a grey-white crystalline limestone (not locally available), was found, testifying to the existence of important architecture at the site (Plate 17). Other blocks of the same material, some worked and one bearing a possible mason's mark, were found nearby. The surface pottery (Fig. 6, nos. 1-8) is mostly Nabataean and Roman, and includes painted sherds of both 1st century B.C. and 1st century A.D. date; fine Nabataean impressed sherds; a fragment of a lamp of standard Nabataean style; and many fragments of 1st-2nd century A.D. cooking pots. Other sherds are later, and include a few with incised decoration similar to that found on the Ma'abiyat pottery (*Bulletin* nos. 8 and 9 (1970), p. 201 and Fig. 3) and the possibility of some medieval occupation on the mound cannot be excluded. Nabataean sherds of the same types were found on the low eroded mounds between the main site and the tombs, and there were also collected from here one fragment of an Eastern Sigillata A bowl, and a sherd of coarse buff gritty ware with a thick brown-grey slip, which may possibly be an example of the unpainted wares of Qurayyah, previously discussed (*Bulletin*, nos. 8 and 9 (1970), page 238 and Figs. 17 and 18). The importance of this whole area of ruins for the study of Nabataean (to say nothing of Hellenistic and Roman) history cannot be exaggerated. It is one of the largest Nabataean sites known, and promises to reveal a wealth of archaeological information when excavated.

On the far side of the Afal are at least two more extensive areas of ruins. These, presumably corresponding to Musil's al-Malha and al-Malqata (not to be confused with Philby's Malaqat), were very superficially examined by the present expedition, and Philby's description²⁵ should be consulted. Philby collected sherds from al-Malqata which he thought to be Nabataean, and he interpreted this area as a suburb of the main town. Although sherds of this period do occur here, the majority of the surface material collected in 1968 is clearly later, and includes greenish incised wares of Ma'abiyat type and much green, yellow and brown glazed pottery. The present writers would prefer to interpret these ruins in the eastern part of the valley as the site

²⁵ *Op. cit.*, fn. 5, p. 217.

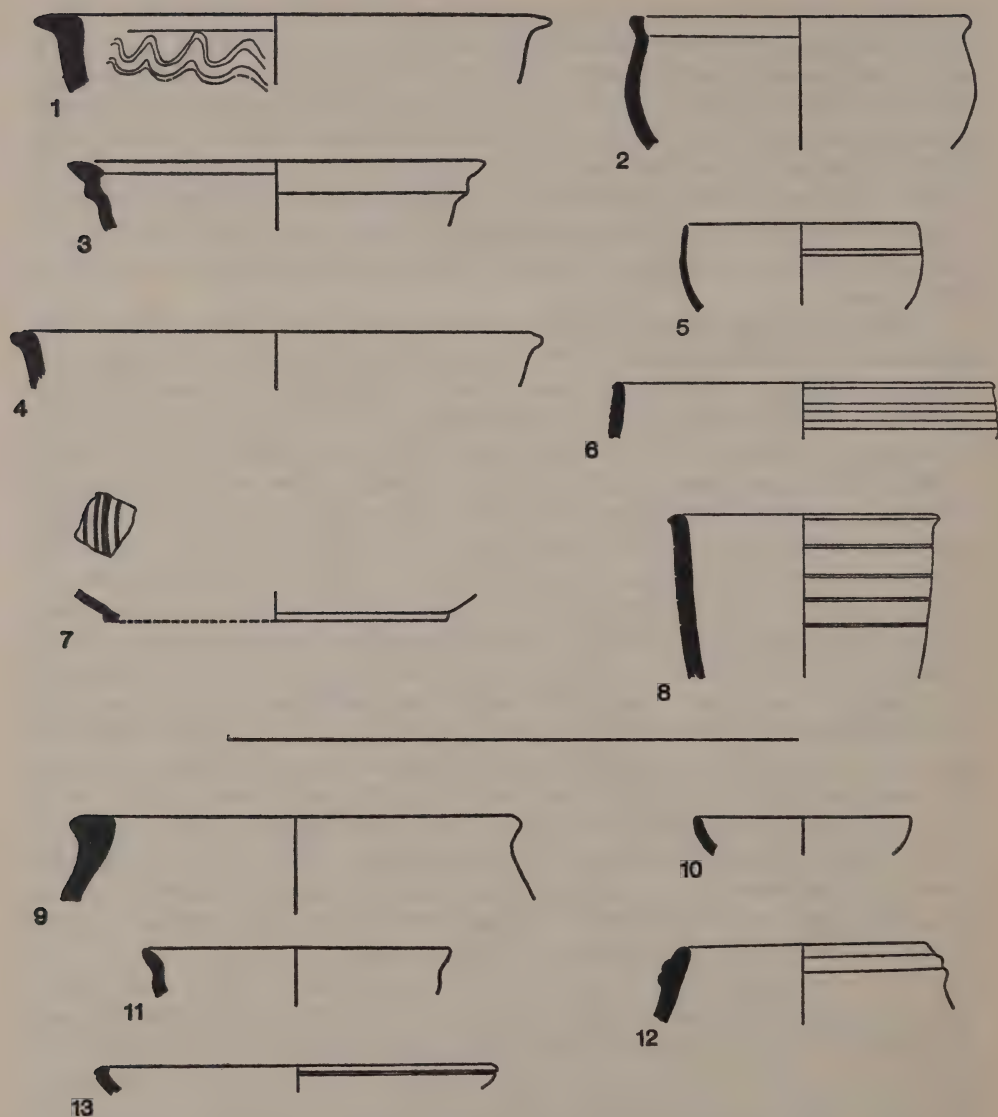


Figure 6 Pottery from al-Bad' and Maqna (Scale 1:5)

(For description see p. 35)

<i>Al-Bad'</i>	<i>Description</i>	<i>Reg. No.</i>
1	Thick gritty grey ware, fired brown.	B.14
2	Very hard dull brick-red ware.	B.13
3	Hard fine greenish-grey ware, with self-slip.	B.16
4	Dull red sandy ware, hard and fine. Purple-brown slip outside, dark grey inside.	B.15
5	Hard sandy brown ware, cream-buff slip outside.	B.12
6	Fine sandy greenish-grey ware, with green slip.	B.18
7	Very hard, close, grey ware with fine grits. Traces of orange-brown slip inside, very worn. Orange-brown slip outside, smoothed (originally burnished?) with bands of red, brown and black paint.	B.22
8	Hard sandy dull red-brown ware. Light brown slip.	B.17
<i>Maqna</i>		
9	Coarse dark grey-black ware, fired red on surfaces. Hand made. Rough surface.	Ma.1
10	Hard sandy ware, light brown, with greenish-buff slip outside.	Ma.4
11	Gritty, sandy buff ware, cream slip (very worn). Hard, well-fired.	Ma.2
12	Hard gritty, grey-brown ware, fired light brown. Light brown slip.	Ma.5
13	Very dark orange-red ('sealing wax') throughout. Slightly darker red slip or glaze. Smooth, but not highly polished. (? Late Roman Red).	Ma.3

of Islamic Midyan, a town described by al-Qazwini in the 13th century as the main trading centre for the whole of Arabia between Medina and Syria.²⁶

Maqna

The position of Maqna has already been referred to; it lies almost due west of al-Bad', and is readily accessible from the latter site by means of an easy wadi. The site has been most recently described by Philby.²⁷ The small bay, enclosed on north and south by ridges, is encircled inland with dense palm groves, stretching some 3 kms. up the wadi, which has a perennial stream fed from several springs. About 1 km. from the shore, above the groves and dominating the stream, is an isolated hill, 25 m. high and about 100 m. × 50 m. in extent (Plate 18). Its summit is encumbered with a mass of ruins, amongst which several walls of a rectangular structure still survive to a height of 3 m. This is the fort known as al-'Awaysa, described by Philby. Its construction is poor, and points to a medieval or later date, but at the foot of the hill numerous earlier sherds were found, including some fine unpainted Nabataean fragments, some ribbed sherds from Roman cooking pots, and a fragment of what is probably a Late Roman Red vessel (Fig. 6, nos. 9–13). Maqna is undoubtedly the Makna of Ptolemy,²⁸ and a more intensive search of the oasis should reveal other remains of the classical town and harbour.

²⁶ Quoted by Musil, *op. cit.*, fn. 15, p. 281.

²⁷ *Op. cit.*, fn. 5, pp. 224–227.

²⁸ Musil, *op. cit.*, fn 15. p. 114 (note 30) and p. 312.

PART II: EPIGRAPHY

The Thamudic and Lihyanite Texts

by G. L. HARDING

Al-'Ula: Wadi Mu'tadil (Nos. 1-15; pl. 19 and fig. 7)

This is a valley running east from the northern end of Khuraybah, see plan in JS Pl. XX and *Bulletin* nos. 8-9 (1970) p. 205, fig. 4. All the texts are on the south side of the wadi, on the rock face immediately above the southern end of the great wall stretching across the valley. They form a group of fifteen texts, mostly Lih, though 10-14 have some Min features, and 9 could be Tham.

- | | |
|---|---|
| 1. 1 š't
'l 1 k'
mn hmq'd k
l l h f'rr
ḏġbt 'r
r hsfr ḏh | To the party of
'Ali'el (belongs) K'-
mân, the sitting place, in its
entirety. So may DhuGhabat vex
(he who) sullies
this inscription. |
|---|---|

On the spot I read the first word as *r't*, but the photo indicates a *š*, and though reluctant to make a change from a reading of the original in favour of a photo, it does seem clear. The interpretation of the first three lines is that proposed by Prof. Winnett, and seems to make the best sense of a difficult text; though involved, it is no more so than any possible alternative. *š't* would be Ar. شَيْعَة party, sect: 'l' is known in Lih (JS 106, etc.) and Tham (JS 378=579, etc.). *k'mn* appears to be the name of the 'sitting place', deriving from the root *k'm* (Ar. *ki'am* a sheath). Just what is implied by the term *mq'd*, sitting place, is difficult to determine, for both here and in the case of a parallel text, JS 72, the site is no more than a rock shelf backed by a cliff on which the texts are engraved. Yet in both cases it was of sufficient importance to warrant the setting up of an inscription to record the fact that it is claimed by a certain party, for JS 72 seems to refer to two people of the party of *hns*? taking 'the ??? and this *mq'd* in its entirety'. Further, it goes on to apparently delimit the place. The actual text of JS 72 has now completely disappeared (see pl. 25 where it was originally above 73). Our text from *f'rr* on is a duplicate of the end of JS Lih 276. The Ar. verb *'rr* has a generally derogatory meaning, 'to be mangy, to sully, defame, vex, etc.', and the sentence could read as above; or it could be a dialectical variant of Ar. *'awwara* to blind, cf. the frequent Saf formula *'wr lq y'wr hsfr*.

- | | |
|---------------------------|----------------------------|
| 2. zydhrij (?)
ḏhš ?br | Zayd kharij
dhu Khašbar |
|---------------------------|----------------------------|

The *r* and *j* of the first name are a little unusual, but the name is attested in Lih

1

IX O Z H

△ K I N H K O

△ I X O F B K I Z F

> > O < I T K K

X I X △ K H

K H I > O < I >

2

⊙ K O P H

⌈ K E K H

5

⌈ K K ⊙

⊙ O P K

3

△ H K O

⊙ K H K Z H

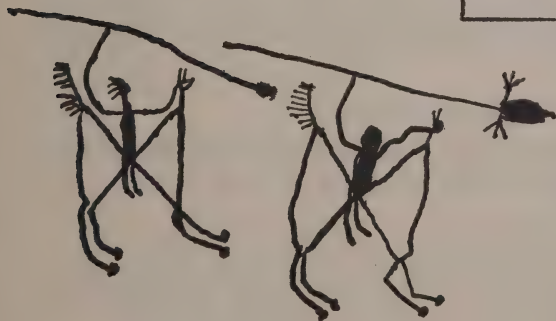
· I K I H I K I

I X I K I

4

⊙ // // // K I P H I Z O K I K

X K H P O



6

⌈ P P K I O K I

7

9

⌈ K X // I X O F H

8

K K O

10

⌈ K O K I ⊙

⊙ O K I

11

⌈ // // // K O K I

⌈ // // // K I

12

⌈ P P B

13

⌈ K X

⌈ K O K I

⌈ X X //

15

B > K O X K I B > Z

14

⌈ K O P K I K I

Figure 7 Texts from the Wadi Mu'tadil (al-'Ula).

(JS 70, 384) and Min (R 3843/1). Prof. Winnett suggests the reading *hšbr*, the *š* having a very strange form, as in JSLiḥ 292; it occurs also in RyGS as *dhšbr*, Sab.

3. This text is unfortunately too worn to be readable; only a few letters can be distinguished and I am suspicious of these as most are read from the photo. Whether the two horsemen with spears are anything to do with these texts is very doubtful, as identically drawn figures are found with Tham texts at Meda'in Salih and Shirawan (see no. 69).

- | | |
|-------------------------|---------------------------------|
| 4. lb'h bn zdlh | Labu'ah son of Zaidilah |
| 'bd ḡḡbt | servant of DhuGhabat |

The first name occurs as *lb't* in Saf (C 122, 1040, etc.), Tham (JS 117, 155) and Qat (R 3882/1, etc.). The end of line 1 is unreadable.

- | | |
|----------|--------------|
| 5. whblh | Wahabilah |
| bn yd' | son of Yada' |

The sides of the *b* do not converge in this text, but the *h* is Liḥ in form. Both names are well known, the first from Saf, Tham and Liḥ, the second from all these plus Min.

- | | |
|-------------------|----------------------------|
| 6. r'nšbr bn ḥmšh | Ra'nshabar son of Ḥamshah. |
|-------------------|----------------------------|

r'n and *šbr* are known separately as names; the former means 'foolish' and the latter 'gift', an unhappy combination. There is a possible name *r'nyl'* in JSLiḥ 142; cf. also *r'n'mr* (JS 108) and *r'n'md* (JS 116). *ḥmš* (CSaf 3329) and *ḥmšt* (JSTham 103) are known, but the form *ḥmšh* is new.

- | | |
|---------------|---------------------|
| 7. swd bn ḥjj | Sawād son of Ḥajjāj |
|---------------|---------------------|

swd is common in Saf (C 110, 2150, etc.), and known in Sab (R 4791, Ry 445/10). *hjj* is known in Liḥ (JS 6, 133), Saf (SIJ 103, 285) and Tham (WTay 5, 9, etc.).

- | | |
|--------|-------|
| 8. b'j | B'ij? |
|--------|-------|

This is only known in the form *byj* in JSTham 369, 421; Ar. *b'j* means 'to be fatigued'. It could also read in reverse as *j'b*, Ar. جَبَّانٌ wild ass, of which there is a very doubtful example in JSTham 571.

- | | |
|-----------------------|----------------------------|
| 9. ḡḡfyt b 'l | HaGhafyat son 'el. |
|-----------------------|----------------------------|

A new name, perhaps meaning 'the sleeper', from Ar. غَفِيَّة sleeper, drowser. The sign read as *ḡ* occurs again in no. 22, also in JSTham 432, 538, 550, 628, and see WLT p. 26.

- | | |
|---------------------------|----------------------|
| 10. ršw (wasm) bn w'l (?) | Rashwa son of Wa'il. |
|---------------------------|----------------------|

Rashwān is known, but now *ršw*; the root means 'to bribe'. *w'l* is well known in all south Semitic dialects.

- | | |
|---------------|-----------------------|
| 11. b'dh bn | Bi'audihi son of |
| yf' bn w' . . | Yafi' son of W' . . . |
| 'n rf | I am rf |

b'dh is known from Saf only (LP 961, 1201; SIJ 764); *yf'* is found in all dialects except Ḥaḍ.

- | | |
|---------------|--------------|
| 12. . . . qdm | . . . Qadam? |
|---------------|--------------|

Doubtful reading; the name is found in Saf, Tham, Min and Sab. There are traces of other letters.

- | | |
|---------------|---------------|
| 13. ' | 'A |
| bn 'wsn | son of 'Aswan |
| 'l'd | 'El'awd? |

Apart from *'wsn*, found in Min, Qat and Sab, this text is not clear; *'l'd* could be from *'dd*, *'wd* or *'yd*, and is not known previously as a name. Remains of the fourth line are unreadable.

- | | |
|--------------------|--------------------------|
| 14. whb'l gn š'b'l | Wahab'el son of Ša'b'el. |
|--------------------|--------------------------|

The first name is common to all dialects; the second would perhaps read *š'b'l*, and both *š'b* and *š'b* are known as names in Saf, but not in combination with the deity.

- | | |
|-------------------|--------------------------|
| 15. ḥrmn bn š'lrn | Kharmân son of Ša'ilram. |
|-------------------|--------------------------|

This text is on a terrace above the group and could not be photographed. The first name is known from Saf (WH 485, 1645, etc.) and Tham (TIJ 256); the second is known from Tham (JS 528).

These are the only new texts found at Khuraybah, but the following JS texts were photographed (some are shown on pl. 25):—

Lih JS 73–77. Considerable deterioration has taken place in this group of texts, 72 having disappeared; cf. JS pls. LXXXVII & LXXXVIII. JS 78, 233–5, 238, 240, 243–4, 250, 272, 274, 278, 279, 282; these appear to be but little changed.

Min JS 118–20, 152–6, 198–200; very little change

In the Municipality at al-'Ula some texts and other objects have been collected together, and other texts are being bought up by the Municipality as older houses are pulled down and the inscribed blocks become available. Thus there is being formed the nucleus for a good local museum. JS Lih 49 was photographed there, showing almost no change, plus a new Lih text no. 84 here, and two new Min texts nos. 85 and 86 (see below, pp. 52, 53). One is impressed again by the accuracy of the JS copies of such few texts as it was possible to check.

Mantar Bani 'Atiya (Nos. 16–43; pl. 20 and 21 and figs. 8 and 9)

These texts are inscribed on the walls of a small watch tower having the above name and visible on the horizon north of the Tabuk-Tayma road about eight kilometers north-west of the latter (above, page 26). Nos. 18–20, 26–27, 30, 33, 36–38 and perhaps 42 appear to be ordinary Tham texts both paleographically and in content, but for the remainder Prof. Winnett has proposed the name 'Taymanite'. The alphabet of both groups is very close to Winnett's Thamudic A (see WLT), but the content of the two differs. In the Taymanite group there are frequent references to the deity *šlm*, which name is not found in the others. Prof. Winnett has recorded and published a number of the *šlm* texts from Jebel Ghunaim, east of the road a few kilometers south of Tayma, in ARNA. The god *šlm* was introduced into Tayma about the sixth–fifth century B.C., so either the watch tower was disused by then, or the guards—whose job must have been pretty tedious—filled some of their leisure moments by recording their names and remarks about *šlm*. It would not be surprising to find a ring of such towers around the capital, similar to the ring of towers, e.g., around Iron Age Amman. (See the discussion by Winnett in ARNA, p. 88ff.).

The majority of the texts are found on the east side of the tower (cf. HCH p.8), and the only one on a fallen stone, no. 32, lies at the north east corner of the east face; it appears to have fallen after the text was inscribed. The north face had a fair number, the west and south only a very few.

- | | |
|-----------------|--------------|
| 16. 1 <i>šm</i> | By Simm? |
| b hm. . | son of hm. . |

šm is known from Saf (C 53, 1880, etc.), and can mean 'lion'; the end of the second name is not clear. Perhaps the dot in front of the *l* is intended as an ' , and the name is 'lšm, otherwise unattested.

- | | |
|----------------------------------|---|
| 17. 1 <i>šwb hḥdryt nšr lšlm</i> | By Shawwab the Ḥaḍriyat?; he gave aid to <i>šlm</i> . |
|----------------------------------|---|

šwbtm is known from Sab (C 414/1), but *šwb* is new. The expression *nšr lšlm* occurs again in nos. 21, 25, 32, 34, and could alternatively mean 'victory to *šlm*', which I think it must do in no. 25 where no names are mentioned. The feminine ending of *hḥdryt* is peculiar: a district *ḥḍr* is mentioned in R 3858/11–12 Qat., and *ḍḥḍrn* is found in Qat (R 3566/7, etc., J 237, etc.) and Sa (C 640/1 and R 4193/3 *bnw ḥḍrn*). Perhaps it could be a mis-spelling for Ar. *ḥaḍiyyrah*, 'troop of men'. See also no. 40, identical.

- | | |
|--------------------------|----------------------|
| 18. 1 <i>mty bn 't'?</i> | By Mâṭiy son of 't'? |
|--------------------------|----------------------|

This and 19 are read from the photo only, having been missed when examining the original, and the reading of the second name is very doubtful. Mâṭiy is known in Saf as a proper name (HCH 83, SIJ 37, 1000), and as a tribe (HSIM 49217).

- | | |
|------------|------------|
| 19. 1 'qšr | By 'Aqšar. |
|------------|------------|

The name is known from Sab (C 204/4). 18 and 19 would appear to have been written after the face had been drawn.

20. hrq. 'hwklw. .swt?

Reading from the photo only, and letters are damaged by later wasms; it seems to be an appeal to the goddess rdw.

21. *ṣmkfr:b'jl:nṣr lšlm* Šamkafir son of 'Ijl; he gave aid to šlm.

The first name is new, and could mean 'Šamm (šlm) is lofty'; but cf. *kfr*'l in JSTham 521. 'Ijl is known from Saf (C 389, 390, etc.) and Sab (C 445/1). The same person is recorded in W Tay 2 and 3.

22. bmk'l gtn'l BuMakk'el Ghuthân'el.

The first name occurs again in W Tay 35 and 36 but is otherwise unknown; *mk*, however, is common in Saf (C 2484, 3613, SIJ 388, 389 etc.). *mkk* means 'to destroy'. For the *ġ* in the second name see no. 9. No root *ġtn* is known, but it could perhaps derive from *ġwt*; the name is new.

23. ḥmyt bn Ḥamiyat son of
tmt':qn mnf TMT', slave of Manāf

Ḥamiyat is known from Saf, Min, Qat and Sab. From the form of the *h*, *b* and *f*, this might well be a Liḥ text. The second name could be, perhaps, Ar. *matha'a* in the IV form? Or *tm + t'*? In any case, hitherto unknown. *mnf* is probably the deity of that name (RNP I p. 18): as a proper name Munif is known from Saf (C 2819, 3309) and Tham (Hu 501, 20).

24. Among the present group of texts there are two further examples of this expression, in 31 and 41, but in both these latter it is preceded by a name. The present text begins with *w*, 'and', on a separate stone (perhaps added after completing the main text), and there is no reference to any person. There is space between the *w* and the bull's head for two or three letters to make a personal name, but no letters have ever been there. So short a sentence, introducing as it does a verb *ltwy* not before encountered in these texts, is difficult of interpretation, particularly as no indication is given as to how the words divide up (but see 41). Tentatively I would suggest the following division and reading:

w mn sm' lšlm ltwy And he who hearkens to šlm (let him)
bend himself (bow down?)

ltwy is thus the VIII form of the Ar. *lawiya*, but it is uncertain whether the subject is the worshipper or the deity; in the latter case it could read 'And if anyone hearkens to šlm, he (the deity) will incline himself (be gracious)'. Prof. Winnett has found the expression at Jebel Ghunaim, WTay 1 and 2 (ARNA, pp. 93–96, where he offers an alternative reading).

25. nşr İslm Victory to İslm!

As there are no names in this text I suggest this alternative reading (see 17).

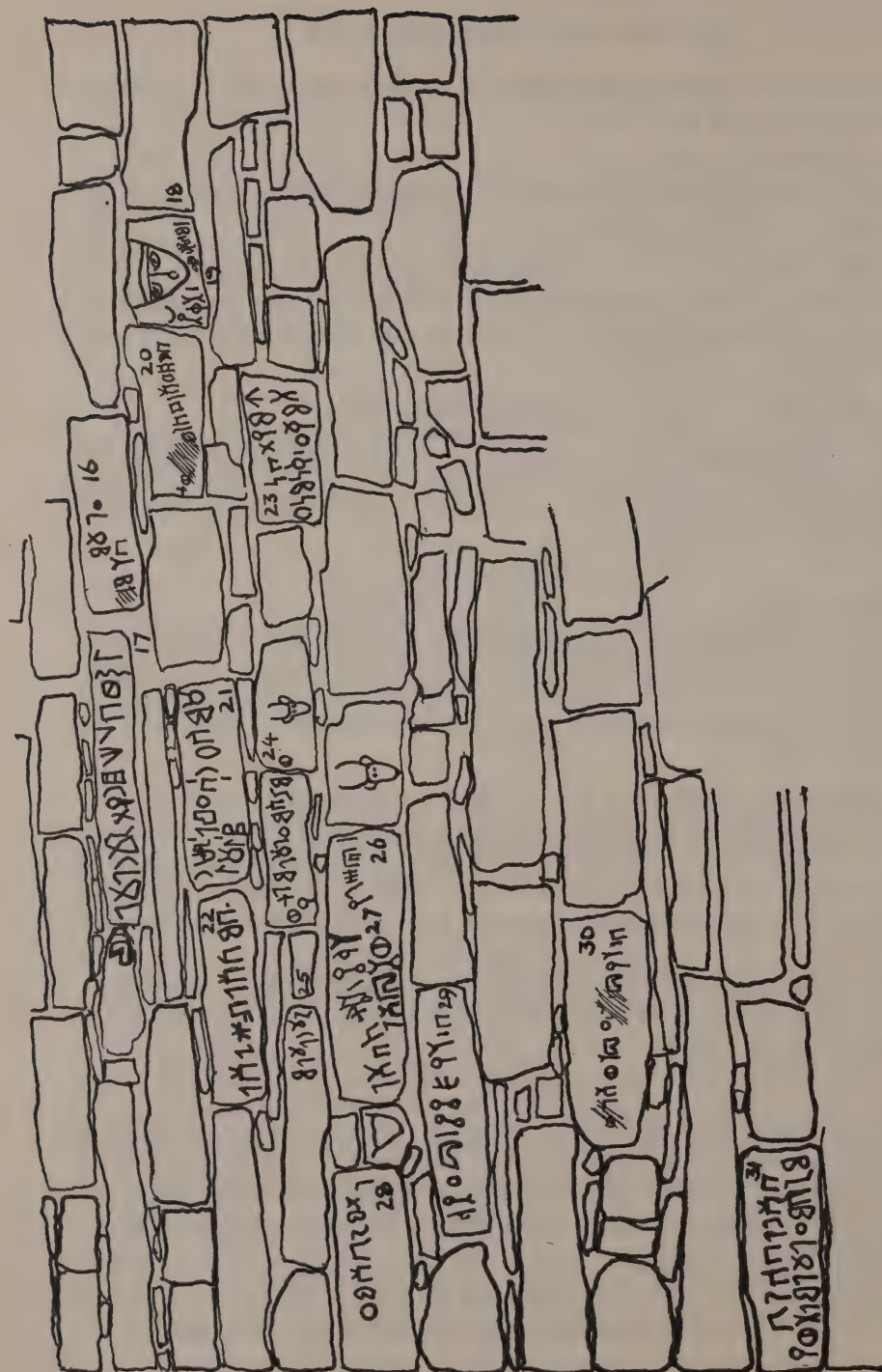
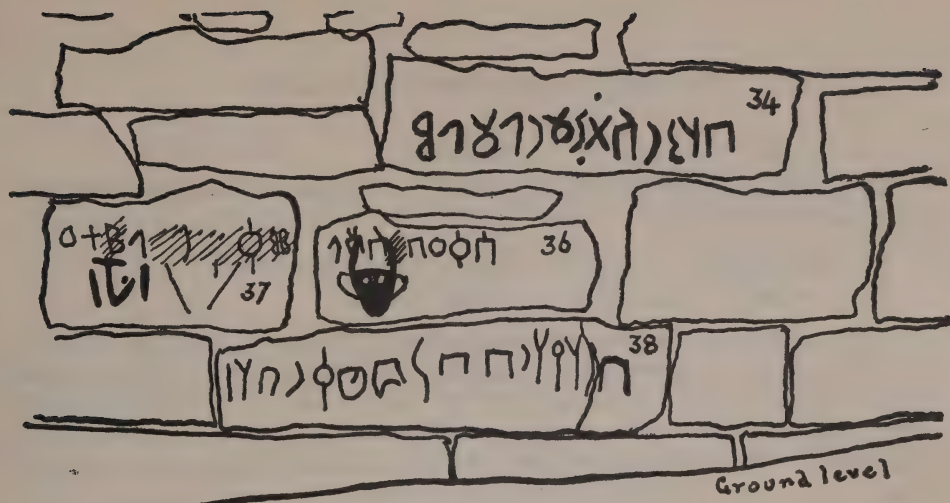


Figure 8 Texts from Mantar Bani 'Atiya

32
ገላጽ ገላጽ ገላጽ



33

35

39

40

41

42

43

Figure 9 Texts from Mantar Bani 'Atiya

26. nm ṭly

By Ṭaliy.

In view of the *l* of ṭly, the first letter must be *n*. The name is found in JSLiḥ 121/2, and means 'young lamb'.

27. hdṭn ḥṣt kb'l
w 'm'l

O Dṭn, listen to Kabb'el
and 'Amm'āl

The name *dṭn* as a deity is well known in Tham (Hu 261, 40; 472, 3, etc.: JSTham 259, 262, etc.). For the reading of *ḥṣt* see BIT p. 192, where Grimme's suggestion that *ḥṣt*=IV imp. of *naṣata* is discussed. Both personal names are new; the first could derive from *kabb* to overthrow, and the second from 'amala to hope. It is unlikely to be a theophoric name with 'Umm. It is curious that two different *alephs* are used in this name.

28. l tmn b 'm'

By Tammân son of 'Amma'

Tammân is known from Saf (C 47, 525, etc.); there is an extremely doubtful example in Tham (JS 47). 'Amma' is new; cf. Ar. 'amm' unstable, irresolute.

29. bnhy ḡṭṭ nm 'ṣd

From Nahiy is leanness; by 'Aṣad.

For the form of the ḡ see no. 9. The root should be غَشَّاث, غَشَّ meaning thinness, leanness. Prof. Winnett, however, considers it the Tham equivalent of Ar. *ghayth*, rain or vegetation. 'Aṣad (the last letter is a little uncertain) is known from Saf (C 262, 293, etc.).

30. bnhy m n ? k ? ' m h w s ? l ? '

Apart from the invocation to *nhy*, little can be made of this text, the letters being very unclear, except for ' m h w.

31. b'rl b klb mn sm' lšlm ltwy Bu'Aral son of Kalb etc.

The first name occurs in Tham (JS 478, where the second name might also be *klb*), deriving possibly from *waral*, the monitor lizard. Kalb is known from all dialects with the exception of Ḥaḍ. For the rest, see no. 24.

32. ṭ'l:b'lw:nṣr:snt:lšlm

Thu'al son of 'Alw; he gave help (for)
a year to šlm.

Thu'al (fox) is known from Saf (C 838, LP 234) and Tham (TIJ 38). 'Alw is new, but the forms 'lwt and 'lwy are known. The last three words (happily divided up by the writer) are capable of other interpretations; if 'victory' were read for *nṣr*, then *snt* could perhaps=Ar. *saniyah*, 'splendid, magnificent', or *sanah*, 'barren'.

33. This text was unfortunately not copied on the spot, and the first three letters are partly in shadow; the latter part is damaged by a wasm, and the whole text is very roughly hammered on the stone, making reading from the photo difficult. I suggest: hnhy . r k b l ḥ ' ? but can make no sense of it.

34. bhšrkt:nšr lšlm BuhaSharikat; he gave aid to šlm

The name appears again at J. Ghunaim (WTay 2); apart from this it is unknown, and is a very peculiar construction if it really means 'son of the company'.

35. t ' t ? r ? . s y l ' r k b I cannot make sense of this.

36. sq' b .k'l Saqa' son of [Ma]kk'el

The letter before *k* was obliterated by the carving of the bull's head. *saqa'a* can mean to collide, or a piece of cloth; for *mk'l* see 22. This text seems to be identical to WTay 36.

37. . q l m t ' The text seems to have been obliterated; the wasm is contemporary, judging by the degree of patination.

38. bnhy hrbb nm wqr bhn From Nahiy are the clouds; by Waqur son of Hann?

Ar. *rabâb* means 'clouds', and is a possible reading. Waqur is known from Saf (C 186, 2077; SIJ 420) and Sab (C 603/9). Hann (or Haun) is found in Saf (C 847, etc.; LP 851) and Tham (Hu 520, 42). The sign suggested as *m* is badly made, but can scarcely be anything else; *w* is curious in having the cross stroke only half way across the circle. The reading of the last name is uncertain, as the final sign is not like either of the other *n*'s in the text. Read perhaps š? *hashsh* means lively, happy, and is known from Saf (SIJ 919, WH 1613).

39. . r z ð r r ddn w ? ' ?? The expression *ðrr ddn* 'war against Dedan', is found again in WTay 21-23 at J. Ghunaim; the rest of the text is unintelligible.

40. h(k)rn bn šwb hðdryt nšr lšlm Ha(k)rân son of Shawwab the Haðriyat; he gave aid to šlm.

The first name was copied by me on the spot as *hkrn*, and though the photo does not seem to bear this out entirely, I think my copy of the original is more reliable. Hâkr is known in Saf (C 667, 4346) and Sab (C 837). See 17 for the rest.

41. lm y'zrl:blrm:mn sm' l By Ya'zaril son of LRM; let he who
šlm ltwy hearkens to šlm bend himself.

y'zrl is found at J. Ghunaim, WTay 12 and 13, and in JS568; it seems to mean 'I will punish'. The letters of the second name are absolutely clear, but it is unknown as either name or root; only one name beginning *lr* is known, *lr'm* on the Aden Museum statue base no.60.611, unpublished (Qat). It could, perhaps, be a mistake or contraction for '*lrm*', which is found in Min, Qat and Sab. For the rest of the text see 24, but it appears from the photograph that there may be a word divider over the ' of *sm'*, but the photo was taken in shadow and the present print is made from a colour transparency, and the suggested divider is far from certain.

42. 'qwl b tby ? 'Aqwal son of Thabay ?

A tentative reading; the letters are very lightly hammered on the stone and the form of some is most peculiar. 'Aqwal is unknown as a name, but *qwl* is found once in Sab (R 4638/1); it could mean 'most talkative'. It might, perhaps, be read as 'hwl (crosseyed), which is known from Saf (SIJ 922). Thabay is also unknown, but *tby* occurs in Saf, Qat and Sab; it means 'to gather together'.

43. l yzkr h 'sy' By Yazkar the ??

Yazkar is new, but *zkr* is found in Saf and Tham. The object is obscure: there is no root 's', and the II form of *sy* means 'to daub or plaster'.

Naq'a Bani Murr (Nos. 44–57; plate 22 and fig. 10)

A selection is offered here of some texts from this site (for which, see above p. 28) which were originally copied by Philby and published in BP II under the number 363; some have been treated by A. Jamme in his *Thamudic Studies*.²⁹ These demonstrate again the unreliability of Philby's copies and his way of splitting up texts and omitting (or adding) letters apparently haphazardly. The following are equivalents:

44=Ph 363 aa3: JTS p. 29	51=Ph 363 ad2
45= aa1: JTS note 21	52= ad3 (part)
46= aa4: JTS p. 29	53= k
47= aa5: JTS p. 29	54= not recorded
48= aa6: JTS p. 11–12	55= 363j
49= aa7	56= not recorded
50= ad1	57= 363ac?

Only the following can clearly be divided up:—44, 47, 49?, 53, 54, 55, 56 (the end of a text only) and 57. The remainder are a jumble, and as I did not see any of them myself I hesitate to offer a reading of them: I have, however, made tracings of what I think *may* be there, but these are not intended to be definitive.

Qurayyah (Nos. 58–62; plate 23 and fig. 10)

Dr. Moritz copied eight Tham texts here in 1906,³⁰ of which nos. 1, 4 and 6 were found and copied again; his no. 1 requires no corrections, but 4 and 6 do.

58.=Moritz 4.
l b's hrjlt. By Bu's, the feet.

The name is known from Saf (C 18 3–4), Tham (WTay 18) and Min (R 2814/3).

²⁹ A. Jamme, *Thamudic Studies*, Washington, D.C., 1968.

³⁰ B. Moritz, 'Ausflüge in der Arabia Petraea III: Greje', in *Mélanges de la Faculté Oriental, Université de St. Joseph, Beirut*, Vol. III (1908).

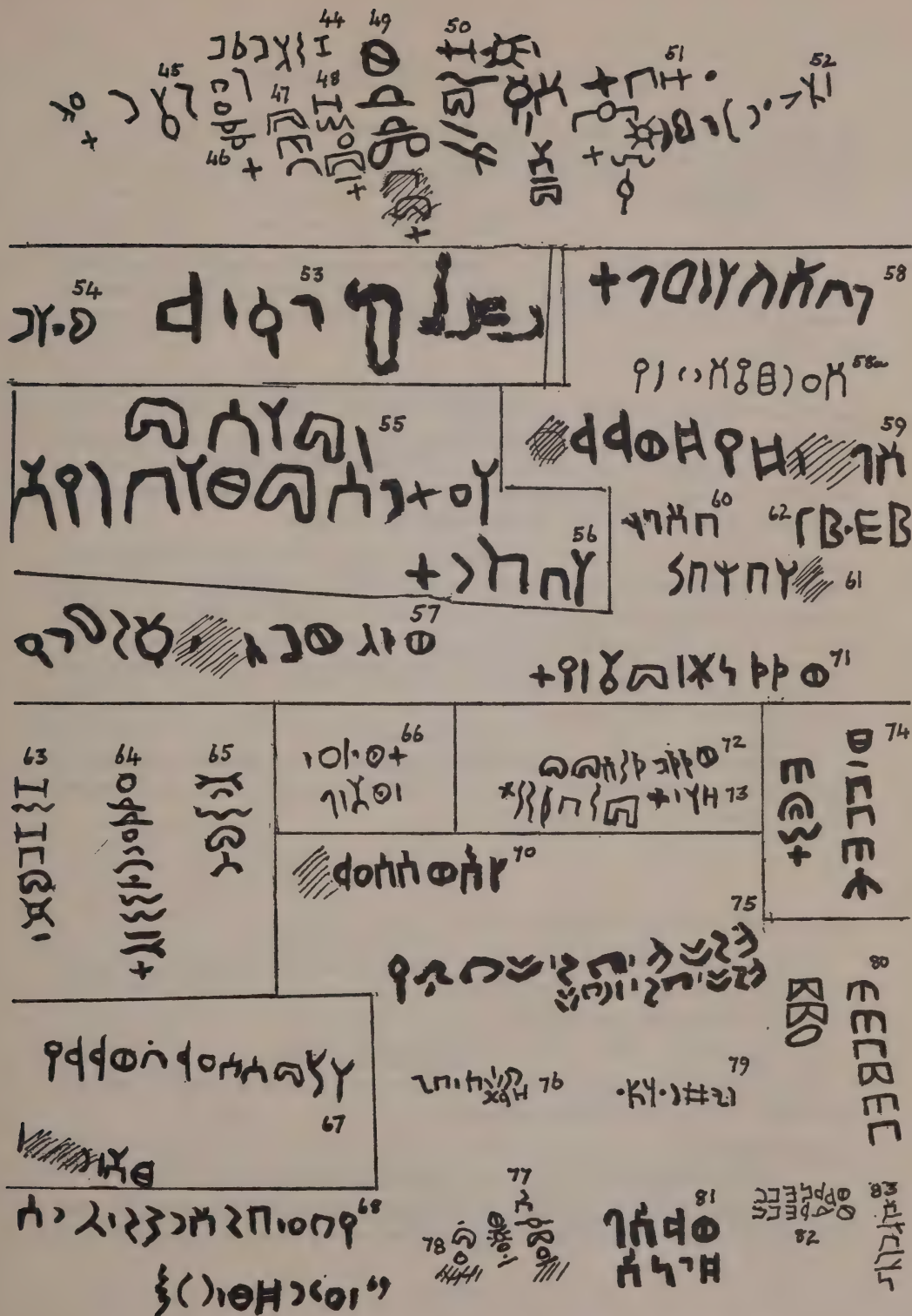


Figure 10 Texts from Naq'a Bani Murr, Qurayyah, Shirawan and Meda'in Salih.

The feet referred to must be those accompanying the text on the right; that on the extreme right seems to be later than the rest.

58a.=Moritz 6.

'rqt.l?y

Hand copy only, no photo.

59. 'l. . . d y d w d d

This text is on a stone in the south wall of the little tower on top of the citadel hill at the east end. The stone is badly shattered and the text is obscure, but may perhaps invoke in some way the help of 'l for 'he who loves'. (cf. no. 67).

60. b'lh

The name is known in Saf (LP 551, WH 3037), and could derive from either *ba'alāh* flask, scent bag, or from *a'alāh* to worship. It is found on a fallen rock on a high terrace at the south east corner of the citadel hill, and is accompanied by a great number of drawings of all kinds and periods. Almost all the fallen rocks in this area are so covered (see Pl. 23), but inscriptions are few; 58 and 58a were from here, also the other Moritz texts.

61. hbhbn

There is a suspiciously circular flaking of the stone in front of the *h* as though *w* might originally have been there, so one could read the name as Wahab-ḥabban, or Wahab-ḡaban, both of which are unknown; there is no room for more than one letter. This text is on a narrow rock layer under an overhang on the north side of the citadel hill, at a point which is a popular camping ground.

62.=Ph 358x (See BP II)

l mnḥm

By Manḥam.

The name is familiar from the Old Testament, but this is its first appearance in South Semitic; there is a possible example in WH 3463, but this could also be *mlḥm*. The root *naḥama* means to groan or roar.

Rawwafah (Nos. 63–66: fig. 10)

These few Thamudic texts were copied during a short visit to the site, and are on the rocks in a gully south of the temple; Philby had copied some of them under no. 317 (see BP II). No photograph was taken.

63. ḡn ḡb mḡr

This is Dhabb Muḡar?

An unsatisfactory reading, though both names are known from Saf (C 348, 921 etc. for ḡb: C 2145, WH 562, etc. for mḡr).

64.=Ph 317f

wdd 'rb nšf f šht?

'Arab loved Nashaf? passionately?

'rb is known in Saf (C 768, etc., HCH 99) and Tham (TIJ 58), but *nšf* is new. *šht* could=Ar. *shahwah*, passion, longing etc. The reading is only a suggestion.

65. 'bšms 'Abshams.

The second letter looks more like *r* than *b*, and the third could read *n*, but 'bšms is known from Qat (R 4162/1).

66=Ph 317a.

Shirawan (Nos. 67–74; plate 22 and fig. 10)

See p. 26 for the location of this site.

67. hšms s'd bwddy O Shams, help with my love.
w 'n And I am

Cf. WTI 23, where rḏw, nhy and 'trsm are all invoked for the same purpose; also Hu 516, 20. It was unkind of somebody to obliterate the suppliant's name so that the deity, not knowing who he was, could not answer his prayer.

68. yf' bn 'ršn ḥ(r)s Yâfia' son of 'Arshan; he is dumb?

A Liḥ text. Yâfia' is found in Liḥ, Saf, Tham, Min and Sab; 'Arshan is found in Liḥ (JS 384/4). The last word is only a suggestion; the middle letter is not clear, and there seems in fact to be room for a larger letter than *r*. This is accompanied by a drawing of a horseman exactly similar to those at Wady Mu'tadil (no. 3) and Meda'in Salih.

69. n't (?) ḏ w b . š *n't* is known from Saf (C 1965, etc.; WH 2380, etc.): for the form of the *t* cf. no. 76. I cannot interpret the rest of the text. The sign read as *n* could also be read as *r* (see no. 53).

The above texts are on the north face of the hill in the centre of the valley, south of the track; 70 and 71 are on the small hill south of the preceding.

70. h'ws s'd O 'Awais, help

It seems as if 'ws is being invoked here as a deity; it is common as a name, standing by itself or in combination with deities, but cf. also 'bd's (R 3737, Min. WH 2664, 2689 Saf).

71. wdd nṭl mšlyt Nathal loves Mašlyt.

Nathal is known from Tham (TIJ 422, BP II 370h). Mašlyt is unknown, but mšlt is known from Saf (C 1834) and means 'active'; mšlyt could be a diminutive.

72–74 are in gullies on the north side of the valley, north of the track; copies are from colour slides.

72. wdd bdn smm

Badan loves Samâm.

Badan is common in Saf (C 470, 502, etc.) and found once in Tham (WTI 30). Samâm is found in Saf (C 463, 822, etc.) and once in Tham (WTI 99); it means 'active, slender'.

73. zhl tmn bdn nt

Tammân shunned Badan; he left the place.

A tentative reading again. The third letter is not certain, and is very small for *l*; it is not, however, *n* as is evidenced by the other two examples of this letter. Ar. *zahala* 'to shun, avoid'. See 28 for *tmn*. Badan is in the previous text, perhaps the same person. Ar. *nata'a* 'to leave a place'. Prof. Winnett suggests reading *zhrt mšb dšt*, Zahrat the catcher of thieves.

74. ḥmnt w rbb ḥd

Ḥimmânat and Rabîb drove (animals)
along quickly.

The reading is proposed by Prof. Winnett. I had read *w l bbḥ ṭmnt*, 'And for BuBâtiḥ, tranquility': but the problem of sorting out the signs for *ḥ*, *ḍ* and *ṭ* has not yet been satisfactorily settled. There is a possible example of *ḥmnt* in JSTham 645; rabîb is known from Saf (C 2927, 2339), Tham (TIJ 16) and Sab (C 902/3). Ar. *ḥaḍa* has the above meaning.

In addition to the above Tham texts there are two brief Nabataean graffiti, which are being dealt with by J. T. Milik (below, p. 59).

Meda'in Salih (Nos. 75–83; fig. 10)

It is curious that out of the nine texts given here, only two can be identified with JS, viz., JSLiḥ 14=76, and JSTham 15=78. Time did not, however, permit a thorough examination of Jebel Athlib, which is the only place where JS record graffiti. Hand copies were made on the spot, and the present drawings are from colour slides.

Liḥyanite.

75a. ḥn'h bn 'fšy

Hân'ih son of 'Afsay

b. ḥn'bn yrf'

Hâni' son of Yarfâ'

Hâni' is common in Saf, Tham and Min, and *hn't* is frequent in Saf and Tham. 'Afsay is known from Saf, Tham, Min and Sab, while Yarfâ' is known from Tham (JS 531) and from Min and Qat as a place or tribal name.

76=JS 14

msk bn

Masik son of

zdt

Zaidat.

Masik is common in Saf, Liḥ, Min and Sab. Zaidat is found in Saf (C 4717; WH 3560); the form of the last letter is curious (cf. no. 69).

Thamudic.

77. sqm 'l

78=JS 15

wš' . l

m'n ?

The readings are doubtful, and except for the verb *sqm* and the name *m'n*, do not yield any sense.

79. l ḡḡ bn h'n

By Ḡhaḡḡ son of Ha'un.

Ḡhaḡḡ is known from Saf (SIJ 978) and Tham (TIJ 5, 58, etc.); Ha'un is new, cf. Ar. *haun*, tranquility, modesty, etc.

80. ḥṭb mḥb

mmj

Ḥaṭṭāb, lover of

MMJ

Again the problem of ḥ and ṭ, and reading apparently the same sign for two different letters. Ḥaṭṭāb (or Ḥaṭīb) is known from Saf (C 2817), Sab (R 4803) and Qat (MAG 25/2, with *m*). *mmj* is a curious form, perhaps derived from Ar. *majja* 'to spit, eject'.

81. wd'l

ḏ.n'

Wadd'el

dhu .n'

Wadd'el is known from Saf, Ḥaḡ, Qat and Sab. The second letter of line 2 looks incomplete, but is so in the original, and could perhaps be a very small *j*. *ḏ jn'm* is found in Sab (R 4194/1). The text could indeed be Sabaeen.

82. wdd f ḥbb

wdd ḥbb

Love to Ḥabīb

The two lines are the same, the lower being but a poor copy of the upper and omitting the *f*. Ḥabīb is found in Liḥ, Tham and Sab.

83. 'lh b lhn

'Alih son of Lahn

'Alih is common in Saf (C 422, 461, etc.), and Lahn occurs once in Tham (Eut 81)

Al-'Ula Museum (No. 84; plate 23)

This inscription is on a stone preserved in the Municipality, as part of a local museum. Reference has already been made to JSLiḥ 49, see p. 39. It, and the two Minaean inscriptions, 85 and 86, also in the museum and discussed below by Prof. Beeston, are new.

Lihyanite.

84. b]ny:hbt:ldg̃bt
s'f'd¹:w'hrt

b]uilt the house for DhuGhabat
'd¹ and guidance

The other half of this inscription is not known, and as it has been carefully broken in half for building purposes it seems likely that it may still come to light in some house. It seems less probable that it is still buried, to reveal in time the site of the temple of one of the chief deities of the Lihyanites.

Note the peculiar form of the *ḡ*, with the oblique stroke starting half way down the upright (cf. the *ḡ* in JS 49). The *w* also is peculiar, open on the left upper side and with only upper and lower stubs for the vertical line.

The omission of the personal pronoun after *s'd* and *'hrt* is unusual.

THE MINAEAN TEXTS FROM AL-'ULA

by A. F. L. BEESTON

85. & 86. (pl. 24)

Inscriptions 85 and 86 are both in a characteristic north-Minaean script similar to Pirenne's 'stade D3', which according to her chronology belongs to the first half of the third century B.C.³¹ In spite, however, of the general similarity between the two inscriptions, one notices that the horizontal line of *s¹* in no. 86 is placed distinctly higher than in 85, and the two are probably not parts of a single text. A further indication of this is that whereas no. 85 yields a text capable, at least, of being read continuously, implying that the stone is complete on each side and broken only at top and bottom, this cannot be so with no. 86, where the extant lines are manifestly discontinuous.

85. f'yh¹twb/f's¹¹yd/dqb[.]f'/w¹
ts¹/kl/hn/mhm/wmt_y
hn/ys¹s'qs¹/d'ḡnhs¹
s¹brr/ws¹mt'/ws¹[r]s³
. . . f's¹nk¹r/ryt¹m¹/w¹y¹m

Although the top of the stone shows clear marks of breakage, which has damaged the tops of the letters of line 1, it seems possible that line 1 may nevertheless be the beginning of the text.

³¹ J. Pirenne, *Paléographie des inscriptions sud-arabes i* (1956).

1. *yhtwb*: cp. Sab *yhtb* (RNP I p. 215); occurrences of proper names with *h* forms in *s*¹ dialects are not uncommon⁸², *s*¹*yd*: see another al-‘Ula text, RES 3357/3. The restoration *dqb*[*l*] is dubious; if the third letter is indeed *l* then it has been ill engraved and distinctly out of vertical; the restoration is however suggested by the occurrence of a clan of this name attested for the al-‘Ula area in RES 3737, 3780.

2. *wts*¹: otherwise unattested and of uncertain etymology. I would suggest however that this text belongs to the class of texts in which protection for persons and property is secured by the formality of a dedication,⁸³ and the verb may hence have the sense of ‘place under divine protection’. *hn/mhm*: see my *Descriptive Grammar of Epigraphic South Arabian* (1962), §40:10. *mtyhn*: otherwise unattested, but apparently an expansion of *mty* with indefinite sense, ‘whenever’, ‘at any time’. The use of *w* joining it to *hn/mhm* is not reproducible in English, but is a linkage of the two indefinite sememes.

3. *ys*¹*š*¹*q*¹*s*¹*q*¹ *ḏnhs*¹: identical phraseology in RES 3350/4; the context there is lacking, but the present context suggest a slightly different interpretation from that offered in the Répertoire. The verb has no doubt that basic sense of ‘proclaim’,⁸⁴ but in connection with the following phrase ‘that which belongs to his power’, I suggest it means ‘lay claim (to property)’.

4. On the *s*¹*brr* formula see my remarks in *BiOr* XV (1953), 200. The line begins asyndetically with a new section dealing with the dedication of particular objects (mentioned in line 5), as distinct from the preceding generalized dedication. *s*¹*rs*³, unattested, is probably from the same root as the Sabaeen verb *rys*³ ‘command’ attested in RES 3910/1 and CIH 126/3.⁸⁵

5. *rytm*: probably the name of an object consecrated. *wym* may be a second such object, or alternatively it may=‘and when’, beginning a further section of the text.

YHTWB S¹YD of the clan QB[L] has
placed under divine protection all (property)
whatsoever that at any time
he may claim as belonging to him.
He has consecrated and offered and dedicated
[against] damage RYTm and YM

86. . . . [illegible] . . .
ty/y¹kr/wl/ys¹tš¹q/wy¹ . . .
. . . /bn/kl/dys¹tbs¹/ws¹ . . .
*s*¹*brr*/ws¹mt¹/y¹ws¹l/ḏn . . .
y/ . . . hly/y . . .

⁸² A. F. L. Beeston, *Descriptive Grammar of Epigraphic South Arabian* (1962), §3: 13, 14.

⁸³ A. Jamme, *Classification générale des inscriptions sud-arabes* (1948), 36; and in particular RES 3357/3.

⁸⁴ RES 3350/3 *ys*¹*š*¹*q*/bšlwt/bbyth/qrnw ‘il proclame par le document dans le temple de Q.’

⁸⁵ On the latter see M. Höfner in C. Rathjens *Sabaeica* iii. 121–5.

2. The first word should be restored [m]ty and the phraseology clearly recalls Qatabanian RES 3566/17 'yhnmw/*kr/lyyf*wn rendered by Rhodokanakis 'seien gegen jede Auflehnung kindgemacht' and Sabaeen Fa 30/7 'hnmw/*kr/wl/yyf*n. The w introduces the apodosis (*Descriptive Grammar* § 52:4).

3. The verb form could be interpreted as a *t*-infix stem from a weak root with strong consonants *s¹b* and pronoun affix; or as an *s¹t*-prefix stem from a weak root with strong consonants *bs¹*.³⁶ In the absence of context here no rendering can be attempted.

4. y'ws¹l: cp. RES 3339/3.

5. The only readable word is 'hly 'perfumes', very common in Minaean texts.

....

in the event of contradiction at any time, let it be
proclaimed and . . .

. . . from all that which he

Y'WS¹L has consecrated and offered this . . .

. . . perfumes . . .

INSCRIPTIONS GRECQUES ET NABATÉENNES DE RAWWAFAH

par J. T. MILIK

La première mention des inscriptions monumentales de Rawwafah a été faite par R. Burton, *The Land of Midian*, I, 1879, p. 239. Lorsque le voyageur anglais s'était trouvé, en 1878, à deux heures de marche de chameau au Sud de Rawwafah, les Bédouins lui ont montré 'a fragment of a Nabataean inscription, finely cut in white sandstone: it had been barbarously broken, and two other pieces were *en route*. The stone is said to be ten feet long (?), all covered with writings', une allusion bien claire, à mon avis, à la grande dédicace bilingue. Burton ajoute dans la note que le fragment nabatéen 'was afterwards exhibited at the Hippodrome, Cairo, and was carefully photographed by M. Lacaze' (rapprochement signalé par Philby, lettre à Seyrig du 1. 5. 1958).

Le 25 juin 1910 A. Musil a visité Rawwafah et a repéré la dédicace bilingue, dont il a fait deux estampages (égérés plus tard à Prague?), une inscription nabatéenne (dédicace de Ša'dat sans doute) et une inscription grecque (dédicace de la tribu Rôbath?)³⁷.

³⁶ This word in R.3610/5 is rendered by Jaussen and Savignac as a verb, 'break'. However, no attempt at rendering this extremely obscure text has been made since their time, and their rendering must be regarded as wholly unacceptable.

³⁷ Musil, *op. cit.*, fn. 15, 184-189, 258, 291, 312.

H. St. J. B. Philby a séjourné à Rawwafah du 20 au 24 janvier 1951. Il a retrouvé ces trois inscriptions et une quatrième fragmentaire, rédigée en grec. En revisitant le lieu en 1952 il n'a plus retrouvé l'inscription nabatéenne ni le fragment grec (passés peut-être à la collection de Khalil al-Faraj);³⁸ Les deux inscriptions grecques ont été publiées à partir des copies Philby, par H. Seyrig.³⁹

Lors de son expédition archéologique en Arabie Séoudite, P. Parr, le 1968, a photographié la grande inscription bilingue. Il a retrouvé en plus une nouvelle inscription nabatéenne et une nouvelle inscription grecque. G. L. Harding a fait, en même temps, des copies partielles des deux textes nabatéens.

1. (*Corpus Inscriptionum Semiticarum*, II, no. 3641: Recueil des inscriptions nabatéennes, préparé par J. T. Milik et J. Starcky.)

Dédicace bilingue, deux grecques et une nabatéenne, du temple de Rawwafah. Elle date du milieu de 166 au début de 169 ap. J.-C.

Six lignes du texte gravées soigneusement sur le linteau long d'env. 230 cm. (mesuré sur les photos): 1^{ère} ligne, lettres 2,5 cm. de haut; 2^e ligne, 1,7 cm.; 4^e ligne (texte nabatéen), 2,2 cm.; 5^e ligne, 2,5 cm. (mesures données par Philby qui ignore, dans sa copie, les lignes 3 et 6).

Copie Philby (carnets Philby, pp. 93-94 no. 335b: '20/1/51'; il a fait aussi un 'rubbing' de cette inscription); trois séries des photos J. E. Dayton (plates 26-29); copie Harding (partielle et seulement de la partie nabatéenne).

Transcription

A. ¹ Ὑπὲρ αἰωνίου διαμονῆς κρατήσεως τῶν θειοτάτων κοσμοκρατόρων Σεβαστῶν μεγίστων Ἀρμενιακῶν Μάρκου Αὐρηλίου Ἀττωνεῖνου καὶ Λουκίου ² Αὐρηλίου Οὐήρου πα[τέρων] πατρίδος τὸ τῶν Θαμουδηνῶν ἔθνος lacune d'env. 60 lettres]-ΣΤΑ καθείδρυσεν μετὰ προτρο[πῆς] ³ καὶ ἐκ πε[ρὶ]θοῦς? lacune d'env. 25 lettres Κ]οῦντου [Ἀντιστίου Ἀδουεντοῦ πρεσβευτοῦ Σεβαστῶν ἀντιστρατέγου . . .].

B. ⁴ 'L ŠLM' DY MTM[KY]N L[K]L [']L[M' lacune d'env. 30 lettres MRQS]'WRLYS 'NṬWNYNS WLWQYS 'WRLYS WRS DY 'RMNY' vacat DNH NWS' DY 'BDT ŠRKṬ TMWDW QDMY ŠRKṬH LMHW' [S]WH MN YDHM WMŠMŠH [M L'L]M ^{5b} vacat WḤFYT 'NṬSTYS 'DWNTS HGMWN' [lacune d'env. 10 lettres] WRMŠHM.

C. ^{5a} Ἐπὶ νείκῃ καὶ αἰωνίῳ διαμονῇ αὐτοκρατόρων Καισάρων [Μ]άρκου [Αὐ]ρηλίου Ἀττωνεῖνου ⁶ καὶ Λουκίου Αὐρηλίου Οὐήρου Σεβ(αστῶν) Ἀρμενιακῶν [Μηδ]ικῶν Παρθικῶν μεγ[αλ]ίστων καὶ τοῦ παντὸς οὔ[κου] αἰ[ν]τῶν τὸ τῶν Θαμουδηνῶν ἔθνος vacat.

³⁸ *Geographical Journal* CXVII 1951, 448-459; Philby, *op. cit.*, fn. 5, 144-49, 154, 188.

³⁹ Seyrig, H., *Syria* XXXIV 1957, 259-261; 'Antiquités syriennes 66' (cf. J. et L. Robert, 'Bulletin épigraphique'; *Revue des Etudes Grecques* LXXII 1959, 267 no. 482; *Supplementum Epigraphicum Graecum* XIX, no. 899).

Le texte C continuait sur le pilastre qui supportait l'extrémité gauche de l'épistyle (cf. *Bulletin*, nos. 8-9, p. 217 and plate 18).

2. Champ inscrit 35 cm. de long, 8 cm. de haut; marge déprimée à droite, large de 15 cm. Deux photos Parr (plate 30); copie Harding.

¹ τὸν νεῶ <ν> συνετέλεσεν ² καὶ τὸ ἱερὸν καθειέρωσεν.

La fin de la dédicace se trouvait sans doute sur le pilastre droit de la porte, dont le texte s'identifie, je pense, avec l'inscription publiée par Seyrig:

3. Longueur actuelle 24,7 cm.; hauteur 8,5 cm.; marge déprimée à droite, large de 17,2 cm. Hauteur des lettres 2,5 cm.

¹ [ἐπὶ Λ(ουκίου) Κλ]αυδίου Μοδέστου ² [πρεσβευτ(οῦ) Σεβ]β ἀντιστρατ(ήγου).

Traduction

A. 'Pour la durée éternelle de la puissance des très divins maîtres du monde, très grands Augustes, vainqueurs des Arméniens, Marc Aurèle Antonin et Lucius Aurèle Vérus pè[re]s de la patrie, la] nation des Thamoudéens a fondé [le temple . . .], par les soins et de par la per[suasion . . . de Q]uintus [Antistius Adventus, légat des Augustes propréteur . . .]'.
B. 'Pour le salut des dominateurs du monde entier, [. . . , Marc] Aurèle Antonin et Lucius Aurèle Vérus, qui sont(les vainqueurs des) Arméniens, ceci est le temple qu'a construit la *fédération* des Thamoudéens, (à savoir) les chefs de leur *fédération*, a fin qu'il soit *posé* de leur main et *qu'il s'y fasse* la liturgie, *en le[ur] faveur, à jamai[s]*; par les soins d' Antistius Adventus, le gouverneur, [qui . . .] et *a mis la paix entre eux*'.
C+2+ ?3. 'Pour la victoire et la durée éternelle des empereurs Césars, Marc Aurèle Antonin et Lucius Aurèle Vérus, Augustes, vainqueurs des Arméniens, vainqueurs des Mèdes, très grands vainqueurs des Parthes, et de leur maison toute entière, la nation des Thamoudéens a achevé le temple et a consacré le téménos, sous Lucius Claudius Modestus, légat des Augustes propréteur'.

Le texte nabatéen de la dédicace bilingue contient plusieurs nouveautés lexicales. Ainsi, le titre grec *kosmokratôr* a été rendu par la phrase participiale: 'ceux qui tiennent ferme (dans la main) le monde entier', où le Pa'el du verbe *tnk* correspond exactement à la seconde partie du nom composé grec, *-kratôr*. En dehors des noms propres, noms des empereurs et du gouverneur, on a transcrit aussi le substantif grec *ναός* 'temple', par *nws*. Du bon araméen relève le Pa'el de *šmš* 'servir', le verbe qu'on employait surtout pour le service divin dans les sanctuaires, comme il en sera encore chez les Syriens chrétiens. Une expression bien araméenne est '(le temple dont les fondations) ont été posées de leur main'; *šewâ* 'poser à plat, niveler' (dérivés nominaux: 'pavement, couche', 'corde d'architecte', etc.). On la comprendra dans le sens littéral de 'main-d'oeuvre volontaire' ou bien dans le sens transposé: 'à leurs frais'.

Le nom d'action *hfyt* se retrouve, sous une forme apparentée, dans une bilingue gréco-palmyrénienne *Inventaire des inscriptions de Palmyre*, X: L'Agora (éd. par J. Starcky, 1949), p. 79 no. 127, où le terme sémitique *hfywt'* traduit le grec *σπουδή* 'empressement, soins'. Dans notre texte, le nabatéen *hfyt* correspond au grec *προτροπή* 'encouragement, impulsion'. Le verbe *hfy*, d'où dérivent ces deux substantifs, n'est pas l'araméen *hefâ* 'couvrir, protéger' (*hafa(y)* en arabe) mais l'arabe *hafa(y)* 'recevoir quelqu'un avec empressement, avec joie, avec honneur' (*taḥaffa(y)* 's'appliquer à'). D'entre les noms verbaux arabes: *ḥafâwat*, *ḥifâwat*, *ḥifâyat*, *tiḥwâyat*, employés surtout dans le sens de 'bon accueil', le troisième est rigoureusement égal à la forme nabatéenne de Rawwafah.

Les emprunts arabes sont bien connus soit dans le vocabulaire nabatéen soit dans le lexique palmyrénien. Ils étonnent encore moins dans un texte nabatéen rédigé par les Thamoudéens qui parlaient une langue arabe. Un deuxième vocable arabe de la dédicace de Rawwafah est *širkat* 'association, société, congrégation'; je l'ai rencontré à l'autre extrémité du monde araméen, dans un graffiti hatréen d'Assour. Le troisième c'est un verbe, *rmṣ*: arabe *ramaṣ* 'mettre la paix entre (*bain*)', 'réparer un malheur (en parlant de Dieu)'. Dans notre texte ce verbe est transitif, donc à la 2e conjugaison (Pa'el), dans son emploi causatif.

La réalisation de la paix parmi les tribus séminomades, qui étaient d'ordinaire en état de guerre entre elles, méritait fort bien une mention spéciale dans une inscription. De même à Palmyre on enregistre pour la postérité qu'un personnage a été honoré d'un buste dans le sanctuaire de Bêl par 'les (tribus des) Benê Komarê et des Benê Mattabôl, parce qu'il a été leur chef et qu'il a fait la paix entre elles' . . . *w'bd šlm' bynyhwn*; CIS II 3915=Inv. IX (J. Cantineau, 1933), p. 22 no. 13. Les cousins des Thamoudéens, les Safaites du désert syrien commémorent dans leurs inscriptions, gravées sur les galets basaltiques, 'l'année de la paix entre la tribu Ba'ad et la tribu 'Awid', SNT SLM 'L B'D W'L 'WḌ; CIS V 4394 et 4446.

4. (CIS, II, 3642b). Inscription nabatéenne de trois lignes encadrées par une tabula ansata. Elle est gravée au bas d'une dalle percée d'un trou rond. Hauteur du cadre 26 cm. (cf. also *Bulletin* 8 and 9, p. 217 and plate 20).

Trois photos Parr (plate 31); quelques lettres copiées par Harding.

La surface de la pierre est fortement endommagée et je n'y reconnais que ŠLM au début de la 2e ligne et W'L ŠLM M. . . au début de la 3e ligne.

Une inscription nabatéenne de Rawwafah a été copiée par Philby; carnets Philby, pp. 81-82 no. 310 et 310bis (deux copies et un 'rubbing'; '20-24.1.51'). Texte encadré de tabula ansata, longue de 46 cm. et haute de 25 cm. Je le lis (CIS, II, 3642a).

[D]NH BYT' DY BNH Š'DT 'FKL
 '[L]H' BR MGYDŴ DY MN RBTW
 L'LH['] 'LH . . . [B]H̄FYT
 'MR'N' [] HGMWN'
 [] 'MRW

'Ceci est le sanctuaire qu'a bâti Ša'dat, le prêtre de 'Ilâhâ, fils de Mugîdû, qui est de (la tribu) Rubatû, à 'Ilâhâ, le dieu de . . . , grâce au zèle de notre seigneur [. . .], le gouverneur.—[A gravé . . . fils] de 'Amirû'.

Le terme *byt'* 'maison', de même que le grec *οἶκος*, ne désigne probablement pas ici le temple principal, *νεώς* et *nws'*, mais une chapelle située dans l'enceinte sacrée (*hiéron*).

Le dieu 'Ilâhâ ('Le Dieu') était vénéré par les Thamoudéens; cf. A Van Den Branden, *Inscriptions Thamoudéennes*, p. 11 et *B.P. II*, pp. XV–XVI. Voir en particulier le graffite thamoudéen *B.P. II*, p. 34 no. 271aa 3: 'LH TR 'L RBT, que je comprends: 'Ilâhâ, regarde (avec bienveillance) la tribu Rubat'. Cette tribu apparaît aussi dans la Transjordanie centrale; voir J. T. Milik, *Studii Biblici Franciscani Liber Annuus*, IX, 1958–1959, p. 355.

La tribu Rubat revient à Rawwafah même dans la seconde inscription grecque publiée par Seyrig:

¹CICΘAIOI Θ[α]μουδηνῶ²ν φυλῆς Ρωβαθου οἰκοδό³μησα<ν> τὸ εἶερόν τοῦτο.

Pour le premier mot, énigmatique, voir A. Van Den Branden, *Bibliotheca Orientalis*, XV, 1958, p. 9 note 24bis.

Ce dossier épigraphique de Rawwafah, combiné avec des données archéologiques, devrait permettre d'esquisser avec assez de détails l'histoire de ce sanctuaire thamoudéen.

Word list for Lihyante, Thamudic and Minaean texts

(Personal names unless otherwise stated.)

'bšms	65	rytm, subs?	84/5	lb'h	4/1
'hly, subs.	86/5			ltwy, v.	24, 31, 41
'hrt, subs.	84/2	zdt	76	lrm	41
'dnhš, v.?	85/3	zdlh	4/1	lm, prep?	41, 71
'ršn	68	zhl, v.	73	lhn	83
'sy', subs?	43	zydhrij	2/1		
'fšy	75a			mtyhñ?	85/2-3
'qsr	19	sbrr, v.	85/4, 86/4	mhb, subs.	80
'qwl	42	srš, v.	85/4	msk	76
'l'd?	13/3	s'd, v.	67, 70	mšlyt	71
'lh	83	s'yd	85/1	mqr	63
'm'l	27	sfr, subs.	1/6	mty	18
'm'	28	sq'	36	mq'd, subs.	1/3
'n, pro.	11/3, 67	sqm, v.	77	mk'l	22, 36
'ws, D.?	70	smt', v.	85/4, 86/4	mmj?	80
'wsn	13/2	sm', v.	24, 31, 41	mn, pro.	24, 31, 41
		smm	72	mhhm	62
b'j?	8	snt?	32	mnf, D.?	23/2
b'rl	31	swd	7		
b's	58			nt, v.?	73
b'lh	60	š't, subs.	1/1	nfl	71
bt, subs.	84/1	šms, D.	67	nšf	64
bdn	72, 73	šht, adv?	64	nšr, v.?	17, 21, 25
b'dh	11/1	šwb	17, 40		32, 34, 40
bn, from.	86/3			n't	69
bhšrkt	34	š'b'l	14	nm, prep.	26, 29, 38
bhn?	38	š'lrn	15	nhy, D.	29, 30,
		šlm, D.	17, 21, 24,		33, 38
			25, 31, 32,		
tmj'	23/2		34, 40, 41	h'n	79
tmn	28, 73	šm?	16	hbhbn?	61
		šmkfr	21	hšt, v.	27
tby	42			hgfyt	9
t'l	32	dr, subs.	39	hkrn	40
				hn	38
j'b?	8	fly	26	hn'	75b
jn'?	81			hn'h	75a
		'bd, subs.	4/2	hn mhm	85/2
hbb	82	't'?	18		
hjj	7	'jl	21	w'l	10
hđ, v.	74	'rb	64	wts, v.	85/1-2
hđryt, pl.?	17, 40	'rr, v.	1/4, 5-6	wd'l	81
hđb?	80	'šd	29	wdd, v.	59, 64, 71,
hmšh	6	'l'l	1/2		72, 82
hmnt	74	'lw	32	wddy, subs.	67
hmyt	23			wqr	38
h(r)s, adj.	68	ğtt, v.	29	whb'l	14
hrmn	15	ğtn'l	22	whbhbn?	61
hšbr	2/2	ğđ	79	whblh	5/1
dñn, D.	27				
ddn, pl.	39	fšy	75a	y'ws'l	86/4
đb	63			yd'	5/2
đgbt, D.	1/5, 4/2, 84/1	qbl, clan	85/1	yrf'	75b
đn, pro.	63	qdm?	12	ystbs, v.	86/3
đh, pro.	1/6			ystš'q, v.	86/2
		kb'l	27	yss'qs, v.	85/3
rbb	38	k'mn	1/2-3	yzkr	43
rbb, subs.	74	kl, adv.	85/2, 86/3	y'zrl	41
rjlt, subs.	58	kib	31	y'kr, v.	86/2
ršw	10	killh, adv.	1/3-4	yf'	11/2, 68
r'nšbr	6			yhtwb	85/1



Plate 1 Meda'in Salih. General view of site



Plate 2 Meda'in Salih. Stone basin



Plate 3 Mantar Bani 'Atiya. Tower on rock outcrop



Plate 4 Mantar Bani 'Atiya

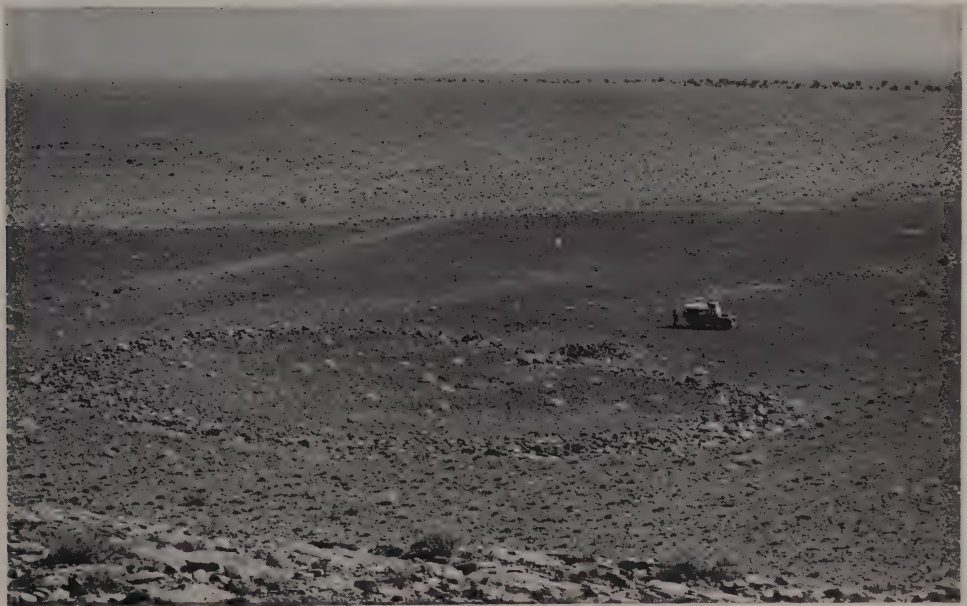


Plate 5 Wadi Shiqri. Stone circle



Plate 6 Khirbat ash-Shiqri



Plate 7 Naq'a Bani Murr. Circle I: detail of masonry



Plate 8 Naq'a Bani Murr. Circle I: general view



Plate 9 Naq'a Bani Murr. Stone cairns



Plate 10 Naq'a Bani Murr. Circle III



Plate 11 Naq'a Bani Murr. Circle IV



Plate 12 Mugha'ir Shu'ayb. The Nabataean tombs



Plate 13 Mugha'ir Shu'ayb. Façade of Nabataean tomb



Plate 14 Mugha'ir Shu'ayb. Façade of Nabataean tomb



Plate 15 Mugha'ir Shu'ayb. Façade of Nabataean tomb

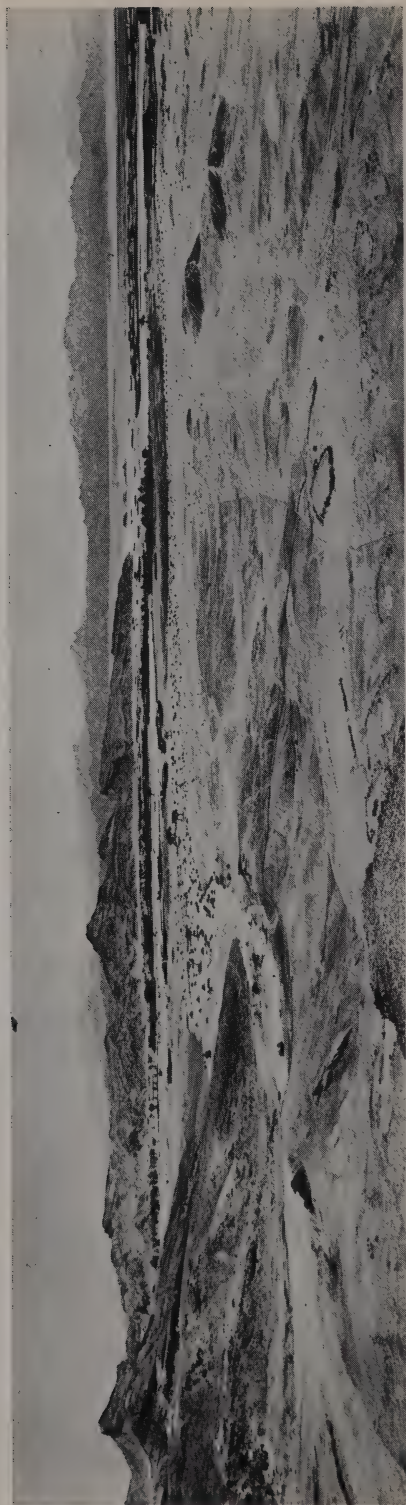


Plate 16 Al-Bad'. General view of Wadi Afal from the west

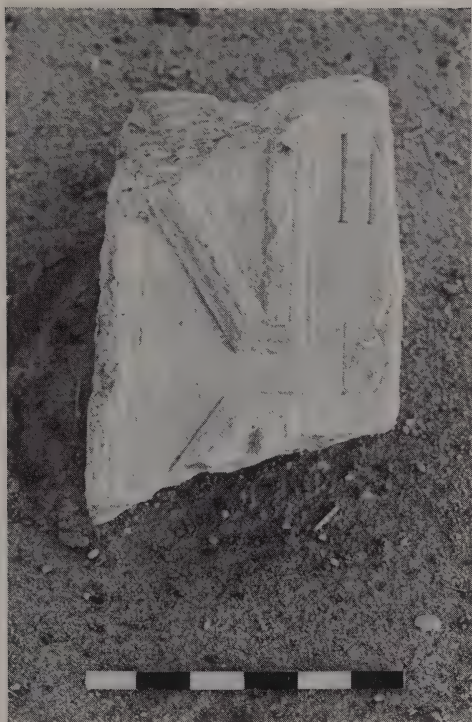


Plate 17 Al-Bad'. Fragment of Latin inscription



Plate 18 Maqna. Ruins of al-'Awayssha

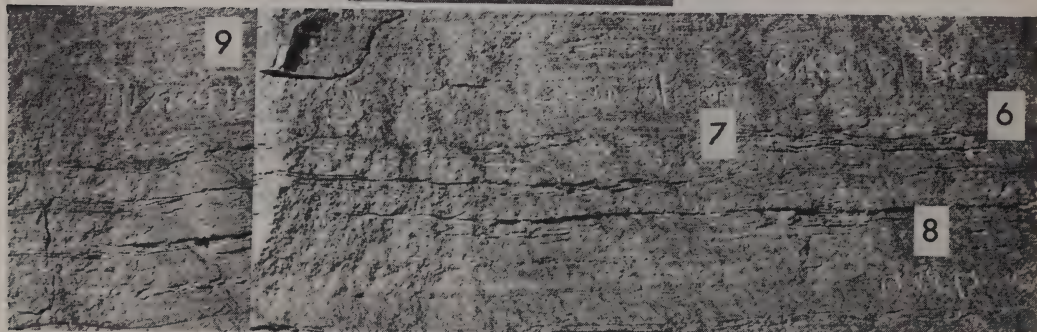
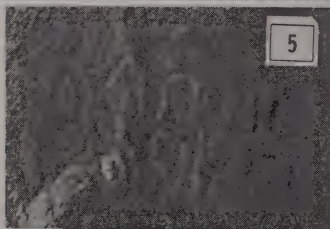
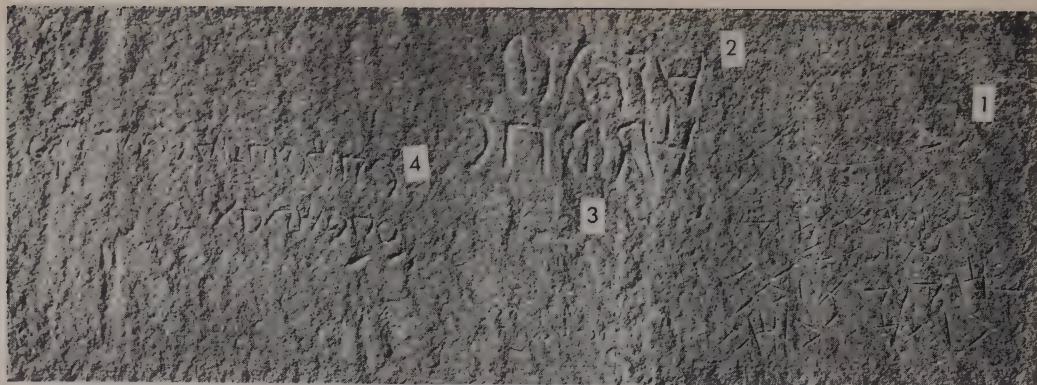


Plate 19 Texts from al-'Ula (Wadi Mu'tadil)

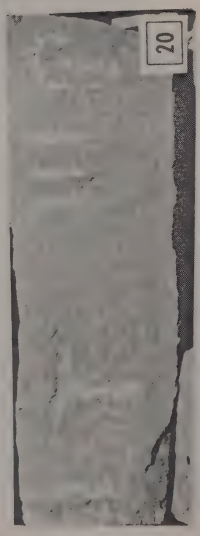
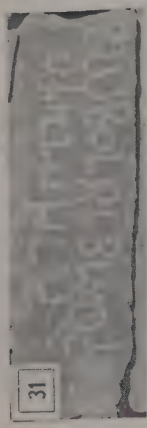
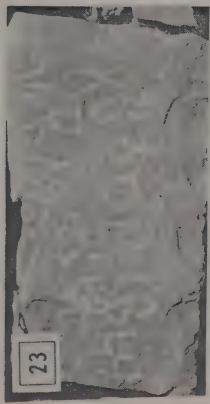
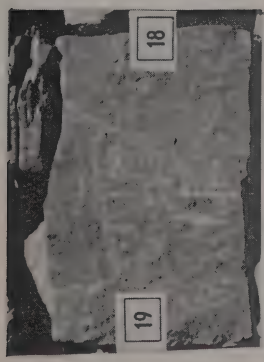
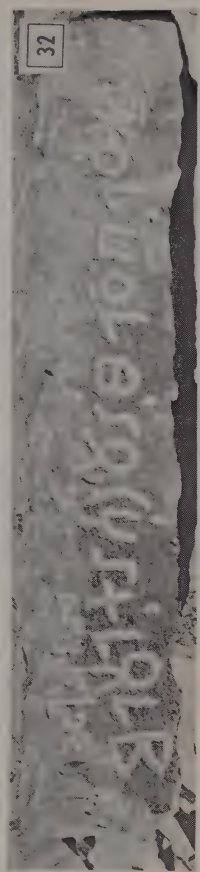


Plate 20 Texts from Mantar Bani 'Atiya

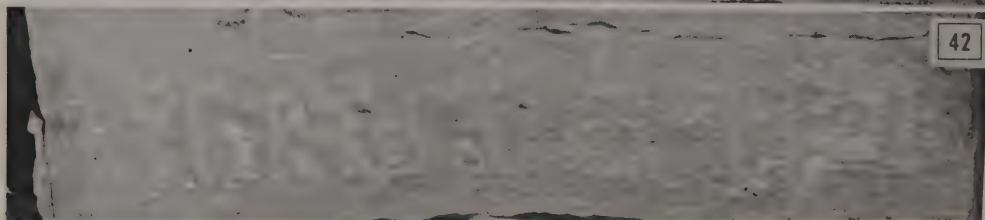
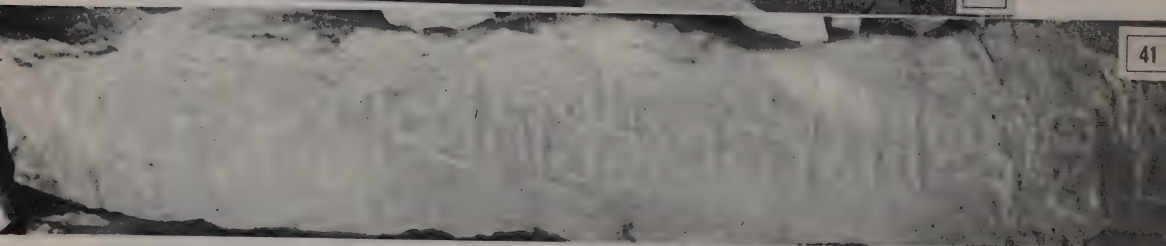
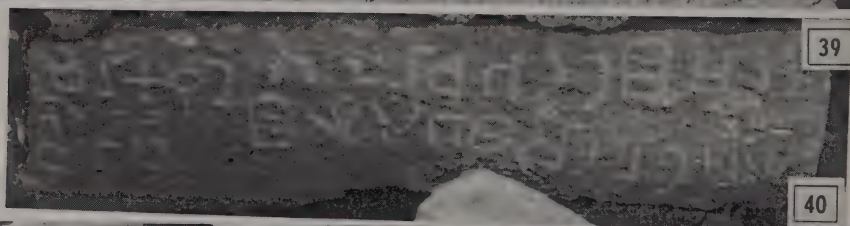
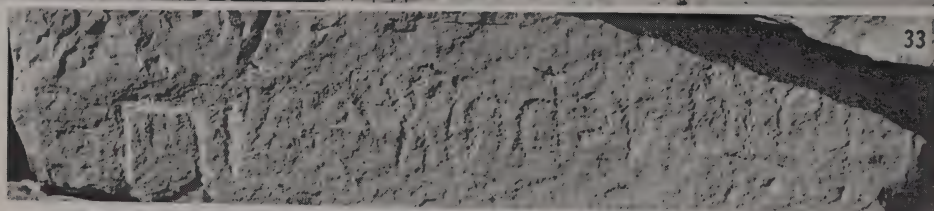


Plate 21 Texts from Mantar Bani 'Atiya

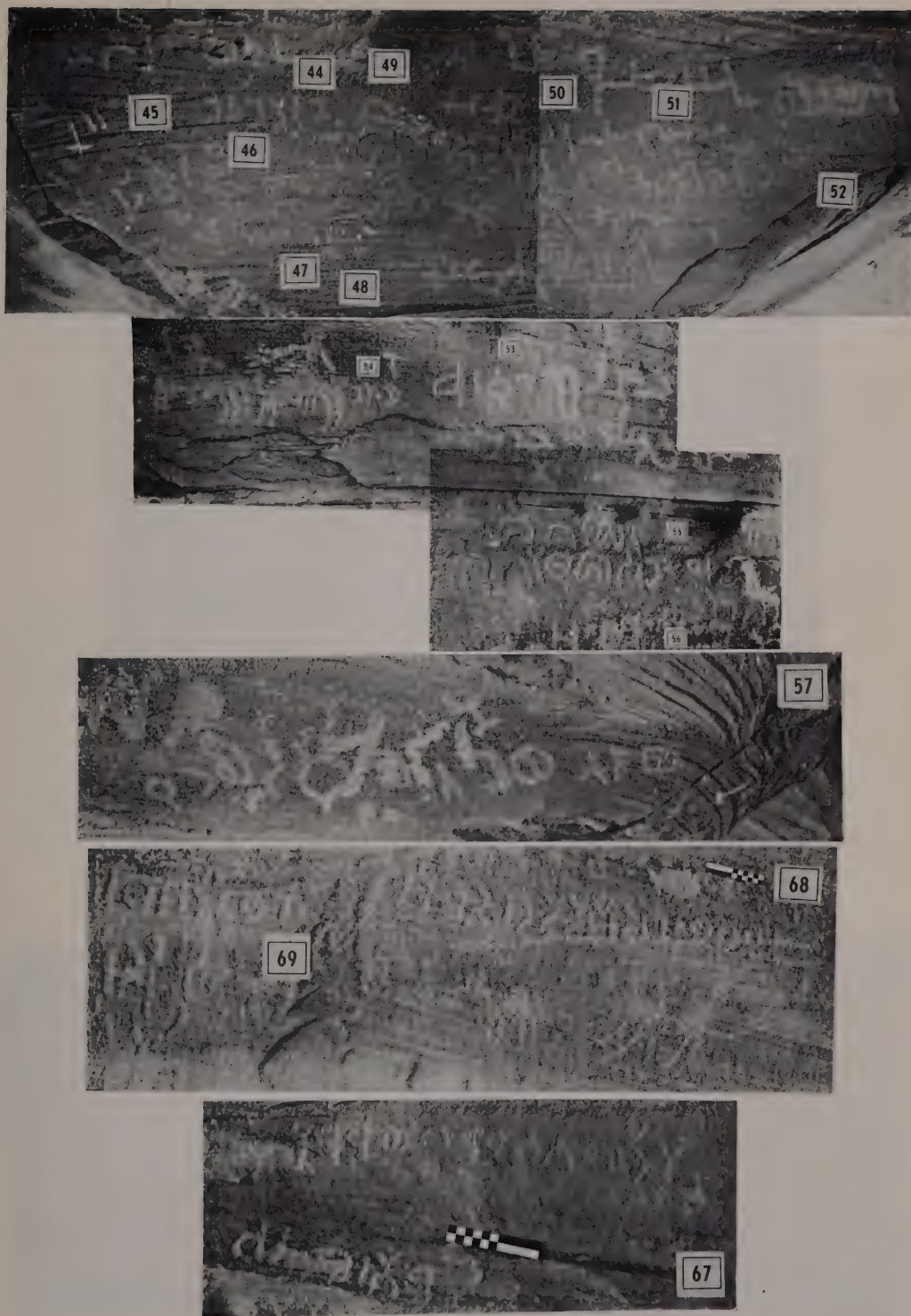


Plate 22 Texts from Naq'a Bani Murr (44–57) and Shirawan (67–69)

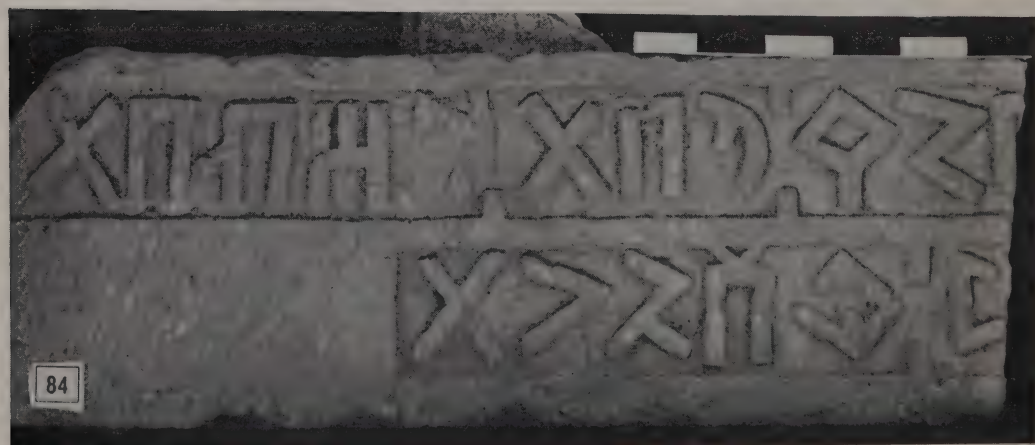
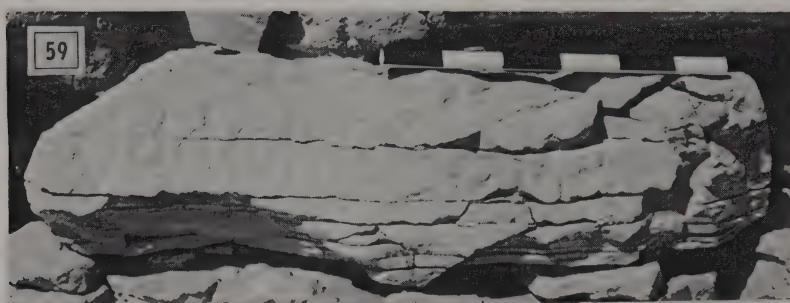
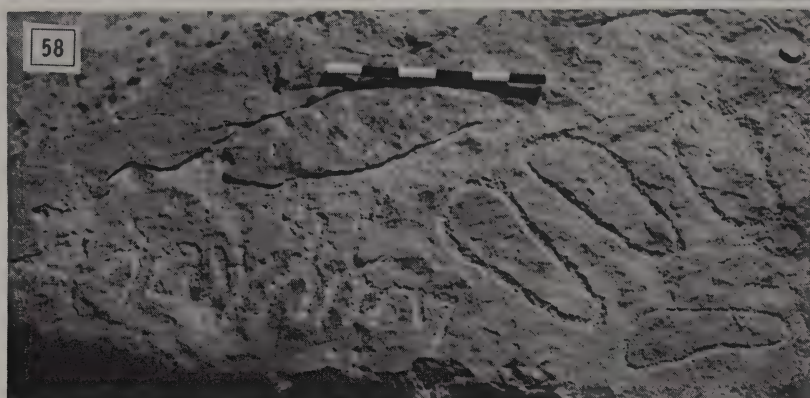
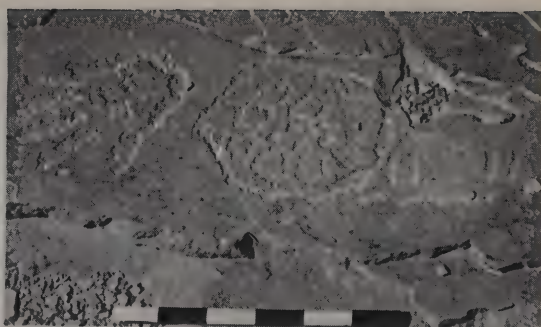
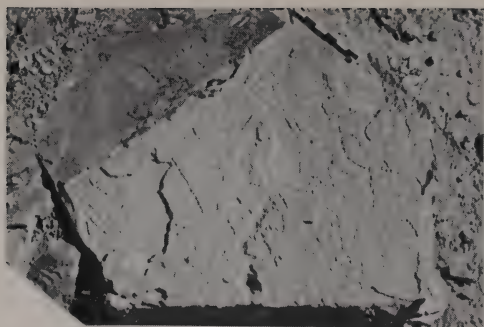


Plate 23 Texts from Qurayyah (58–59) and al-‘Ula (84)

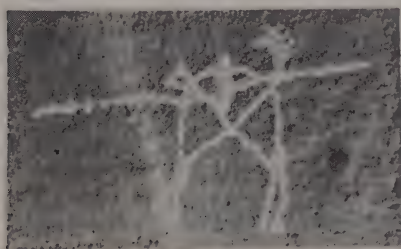
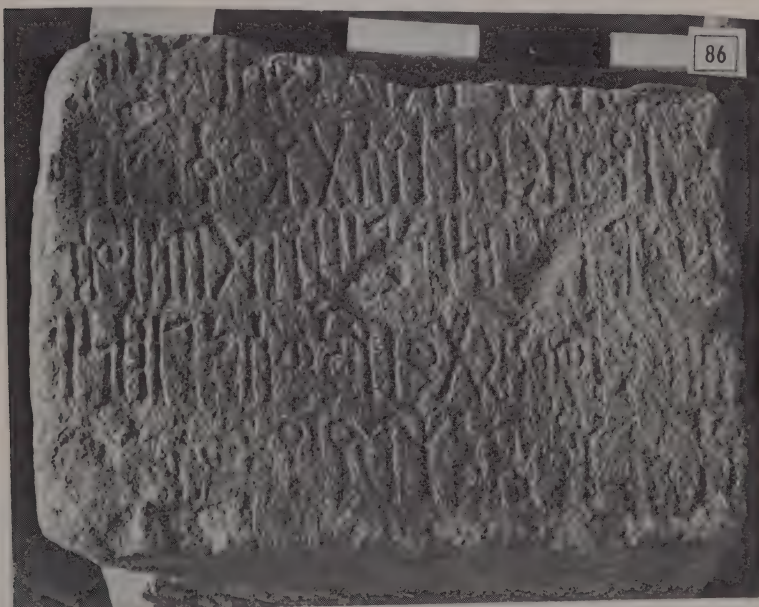
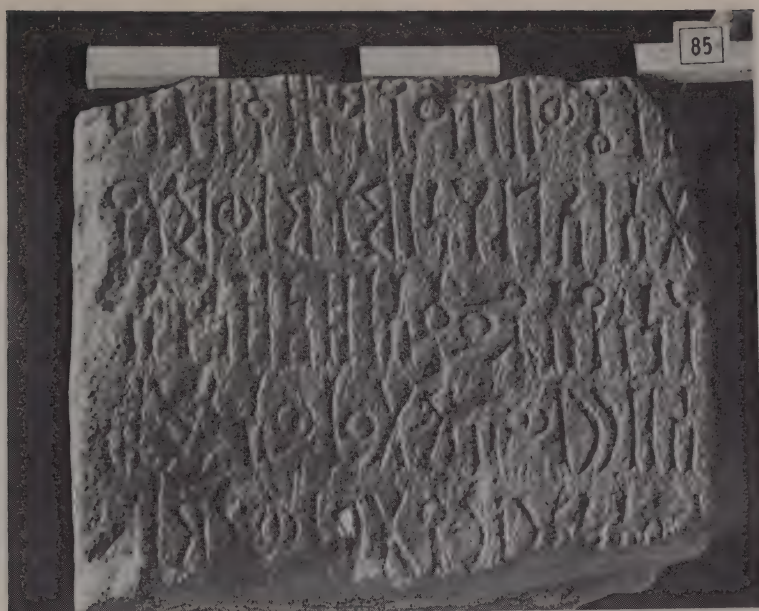


Plate 24 Texts from al-'Ula

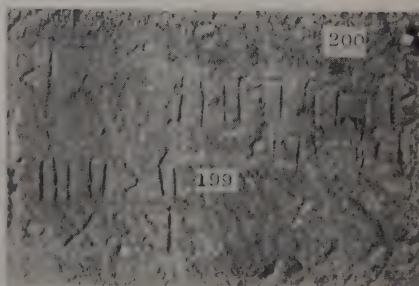
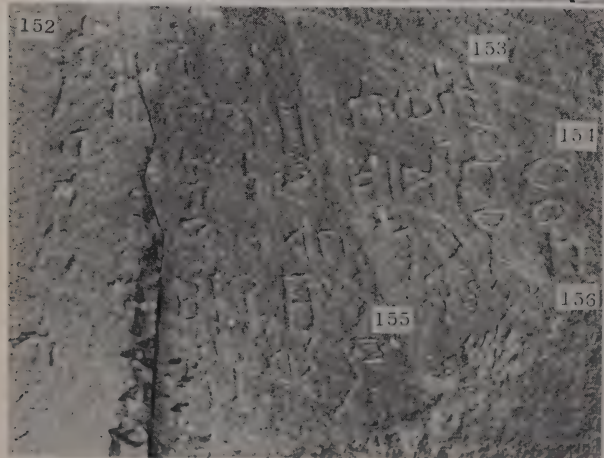
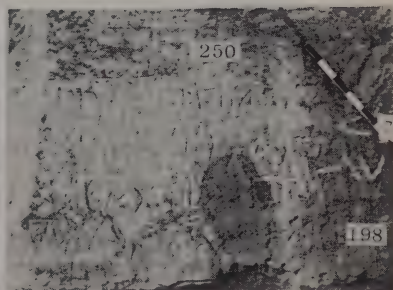
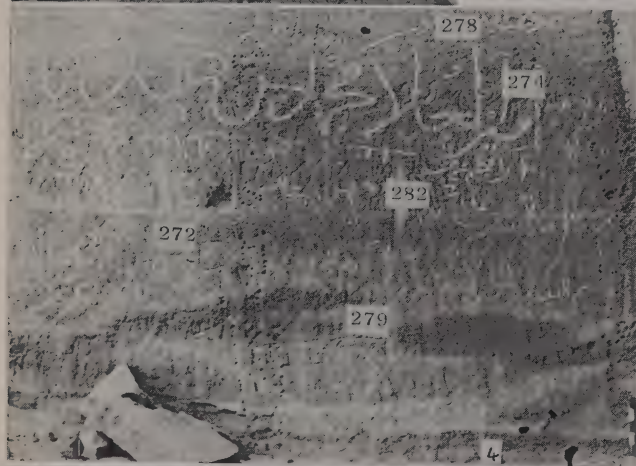
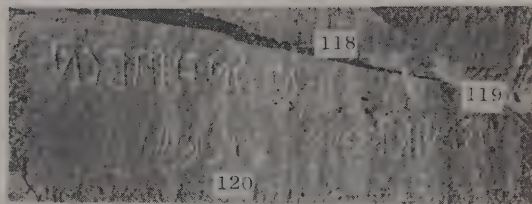
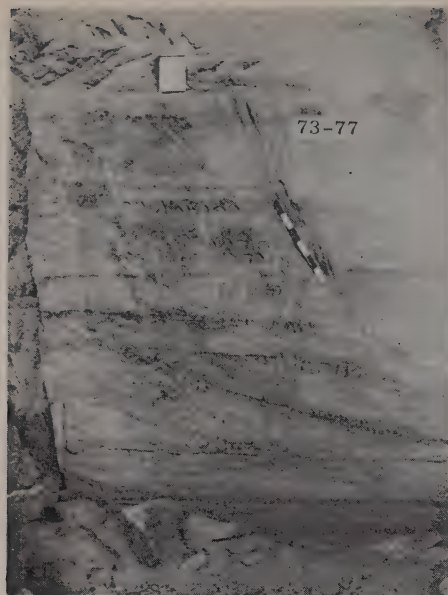


Plate 25 Texts from al-'Ula (Previously recorded by Jaussen and Savignac)



Plate 26 Rawwafah. Bilingual dedication

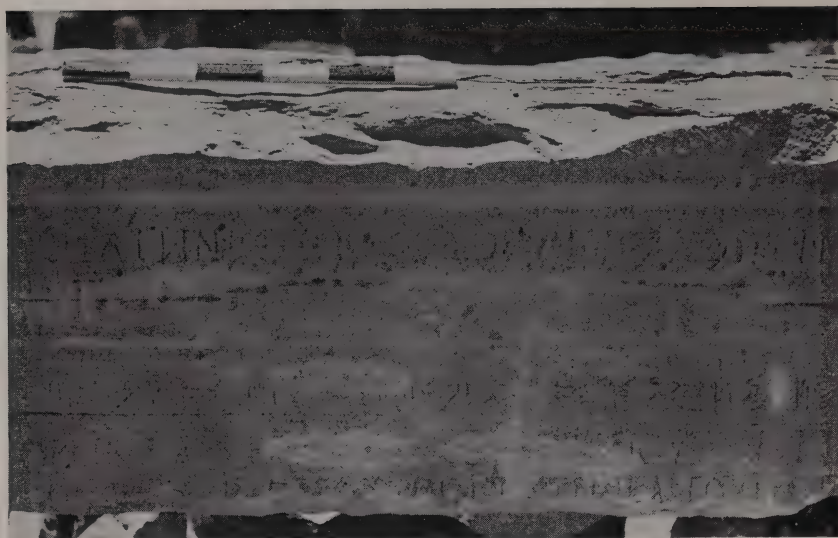


Plate 27 Rawwafah, Bilingual dedication

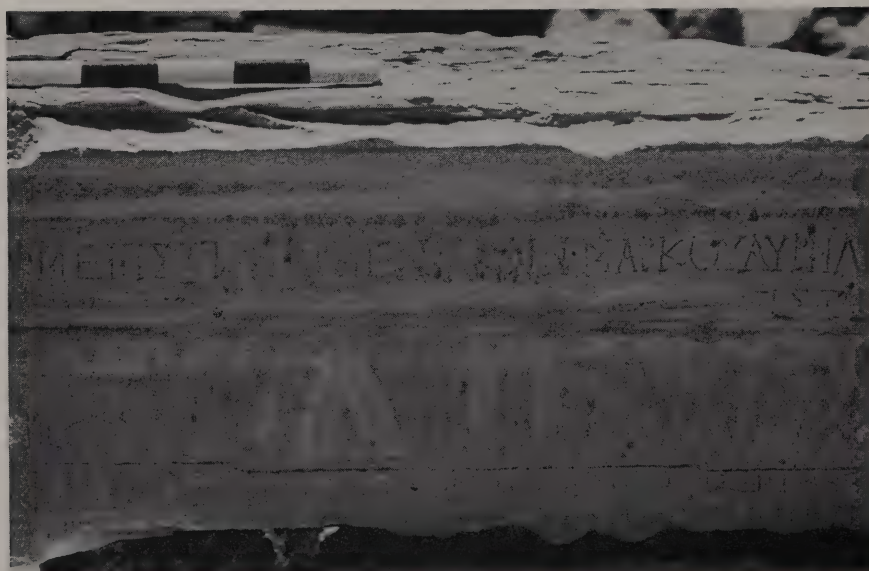


Plate 28 Rawwafah, Bilingual dedication

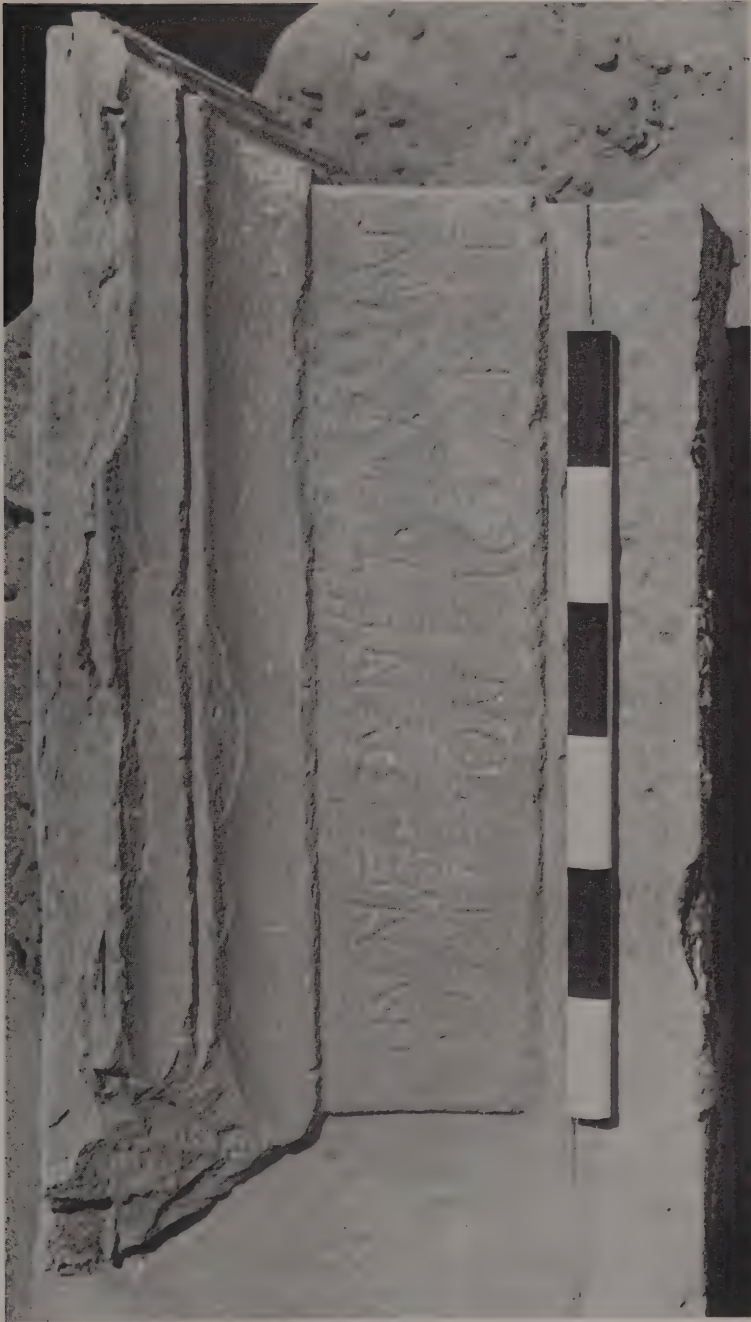


Plate 29 Rawwafah. Bilingual dedication

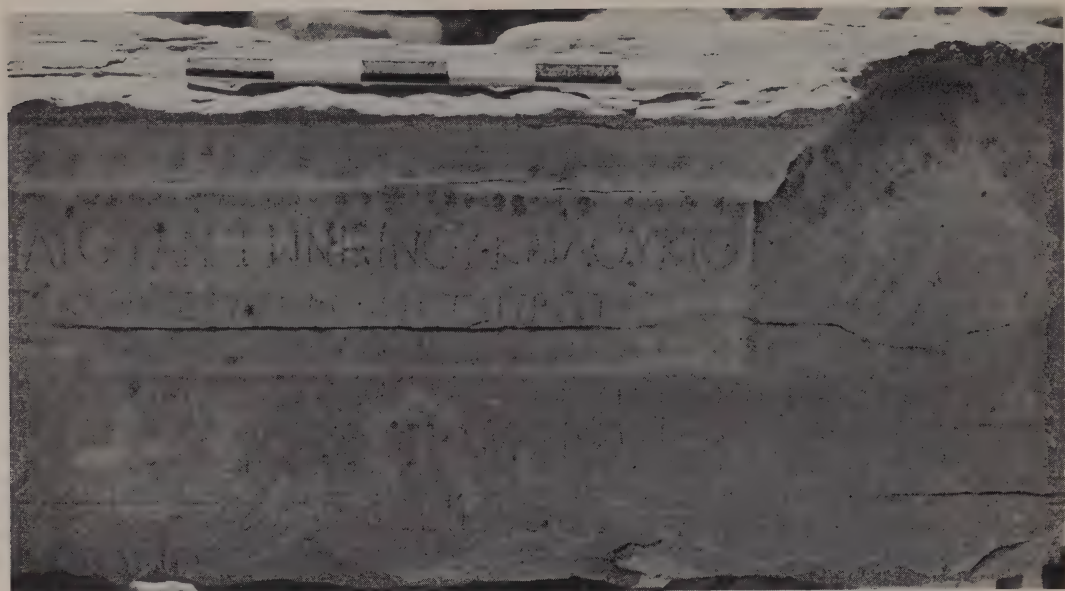


Plate 30 Rawwafah. Inscription on pilaster



Plate 31 Rawwafah. Nabataean text on piercer slab

In Part II of this article the following abbreviations are used.

ARNA	F. V. Winnett and W. L. Reed, <i>Ancient records from North Arabia</i> , University of Toronto Press, 1970.
BiOr	<i>Bibliotheca Orientalis</i> , Leiden.
BIT	A. van den Branden, <i>Les inscriptions Thamoudéennes</i> , Louvain, 1950.
BP	A. van den Branden, <i>Les textes Thamoudéens de Philby</i> , I & II, 1956.
C	<i>Corpus Inscriptionum Semiticarum</i> , part IV South Arabian, part V Safaitic.
CTH	G. Caton-Thompson, <i>The tombs and Moon temple of Huraïdha</i> , London, 1944.
D.	Deity.
Eut	Numbered texts of Julius Euting.
Fa	A. Fakhry, <i>Archaeological journey to the Yemen</i> , I, II, Cairo, 1952.
G1	Numbered texts of Edouard Glaser.
Ḥaḍ	Ḥaḍrami.
HCH	G. L. Harding, 'The cairn of Hani', in <i>Annual of the Jordan Dept. of Antiquities</i> , II, 1953.
HSIM	G. L. Harding, 'Safaitic inscriptions in the Iraq Museum', in <i>Sumer</i> VI, p. 124f., 1951.
Hu	Ch. Huber, <i>Journal d'un voyage en Arabie</i> , Paris, 1891.
JS	Jaussen & Savignac, <i>Mission archéologique en Arabie</i> , vols. I, II and Atlas, Paris, 1909.
Lane	E. W. Lane, <i>An Arabic-English Lexicon</i> , 8 vols.
Lih	Lihyanite.
LP	Enno Littmann, <i>Safaitic Inscriptions</i> , Leyden, 1943.
MAG	Mahmud Ali Ghul, 'New Qatabanian Inscriptions', in <i>Bulletin of the School of Oriental and African Studies</i> , XXII, 1959.
Min	Minaean.
Ph	Texts copied by H. St.J. Philby.
Qat	Qatabanian.
R	<i>Répertoire d'Épigraphie sémitique</i> .
RNP	G. Ryckmans, <i>Les Noms Propres Sud-sémitiques</i> , Louvain, 1934.
Ry	G. Ryckmans, <i>Inscriptions sud-arabes</i> , numbered in sequence.
RyGS	G. Ryckmans, 'Graffiles Sabéens relevés en Arabie Sa'udite', in <i>Rivista degli Studi Orientali</i> , 32, p. 557f., 1957.
Sab	Sabaeen.
Saf	Safaitic.
SIJ	F. V. Winnett, <i>Safaitic Inscriptions from Jordan</i> , Toronto, 1957.
Tham	Thamudic.
TIJ	Harding & Littmann, <i>Some Thamudic Inscriptions from Jordan</i> , Leiden, 1952.
WDL	F. V. Winnett, 'Dedanite & Libyanite inscriptions', in ARNA.
WH	Winnett & Harding, <i>Four Thousand Safaitic Inscriptions from Jordan</i> (in preparation).
WTay	F. V. Winnett, 'Taymanite texts from Jebel Ghunaim', in ARNA.
WLT	F. V. Winnett, <i>A Study of the Lihyanite and Thamudic Inscriptions</i> , Toronto, 1937.
WTI	F. V. Winnett, 'The Thamudic inscriptions', in ARNA.
Carnets Philby	Copies of the relevant pages of Philby's notebooks in the possession of J. T. Milik and J. Starcky.

Bos primigenius and the Bone Spoon

by JOHN NANDRIS

Bone spoons with a V-base to the bowl are a well-defined trait which appears to be specific to the First Temperate Neolithic of south east Europe. They therefore to some extent reinforce the definition of this early aspect of the European Neolithic, and may help to indicate some relationships outside it. They should be considered against the background of other aspects of the First Temperate Neolithic (or 'FTN') and its characterisation¹, which cannot be done in full here. Since many of the individual examples, and even sites, mentioned cannot be said to be published the list may not be quite exhaustive, and accurate enumeration is difficult. But some general points of interest can already be made in connection with this trait. Since they are so general it is perhaps excusable to extend them briefly with reference to areas outside the FTN, including the Hungarian copper age, and to some traits other than bone spoons, such as the Slotted Antler Sickel, and the bone studs of the FTN and Bandkeramik.

Definition of the Type

i. Osteological traits:

It is clear that in many instances within the FTN area the bone spoons are made from one particular bone of a particular animal. They consistently display all or some of the features mentioned, including both osteological and technological traits. In the first place the usual dimension of the spoons must be considered. This is controlled by osteological factors, namely by the available length and thickness obtainable from whatever bone was used. It is not possible to give a complete statistical verification, because of incomplete publication, the loss of some examples, the many breakages, and the intense wear to which some bowls have been subjected. But from the data available and from handling about a third of the material, it seems just as meaningful in the circumstances to assert that the range of lengths for good complete specimens is from c. 12 to 17 cms., with c. 14 to 15 cms. as the most usual length. The thickness of the shaft is commonly between 1 and 1.5 cms., sometimes reaching almost 2 cms. in one dimension at the base of a thick shaft. The width of the bowl is usually about 2 to 2.5 cms., but may reach over 3 cms. These dimensions come within osteological limitations, while the length of the bowl is of course technologically determined. Other osteological traits are the *sulcus* or groove which may appear on the rear of the shaft; the cancellous tissue holes commonly present in the lower half of the

¹ Nandris, J. G., 'The development and relationships of the earlier Greek Neolithic', *Man* Vol. 5, no. 2, June 1970, 192-213.

shaft, showing that the bone is here approaching an articular end; the transverse groove at the base of the shaft—a natural surface which does seem on occasion to be part of an articular surface; and finally a small foramen which may be natural and is sometimes present on the front of the handle near the base. In some cases the bowl and shaft are slightly angled to each other, or the shaft is slightly wavy, suggesting the configuration of a bone outline.

ii. Technology and function:

These spoons were made from particular long bones, with a standardised method of manufacture. That much is clear from the consistency of the product over the FTN area, and the method and form are transmitted and hence culturally derived. Labour-saving must be reckoned with in the selection of the bone and technique employed. The spoons are often highly finished, with thin well-polished bowls. The shape of the bowl is usually an elongated oval in the FTN, and a rounder shape in Bulgaria and Anatolia. The V-base is sharp and may even be slightly undercut. A slight point replaces it in Bulgaria or Anatolia, at the base of the more rounded bowl which is found in those areas. Even in the FTN area some spoons may show a peak in profile at the base of the bowl, rather than any marked 'V'. The handle may continue as a ridge or spine along the back of the bowl.

Flint tools were presumably used to make these spoons, and where the polish is less complete than usual scratch marks can be seen on the inside of the bowl in some cases, deriving because of their position presumably rather from manufacture than wear. Some examples have been worn down till the bowl is a mere stump, or the corners have been worn asymmetrically from right or left handed use. This intense wear is a notable trait of the V-base spoons. Georgiev has suggested the function of scraping flour off querns, noting that at Asmaška spoons were found near the querns in houses. That from Delčevo near Preslav in Bulgaria was found near the hearth, and that from Bubanj in Serbia was in a pit with pottery and a figurine. It has also been suggested that the function of the spoons was to decorate or smooth pottery. Since the associations seem to be domestic, and the spoons often very delicately made, it seems to me that the most realistic explanation of their function is that they were used as spoons. The nature of neolithic pottery explains the wear quite adequately, and old worn examples may ultimately have been used for other purposes, just as an old teaspoon might today. To call a spoon a spoon is banal only to those who can afford to disregard the perspective of archaeological time; for eating utensils are just as much an adjunct of the neolithic way of life as pottery, furniture or houses. The fact that such things become commonplace at this stage of human development emphasises their importance and does not lessen the contrast with what went before. It ought to be emphasised that wooden forms may have filled the functional requirements after the FTN spoons vanish, and perhaps also to some extent before they appeared. Wooden vessels are attested in Anatolia, and even more recently in the FTN. The V-base itself

may owe its characteristic shape to working in bone with a grooving technique, and may relate in this way ultimately to the shaping of the slotted sickles. The sickles too may have had wooden counterparts in areas of the FTN or Bandkeramik where flint blades but no shafts are known.

The category of V-base bone spoons is thus sharply distinguished by osteological and technological traits, as well as by their archaeological and chronological context. They are true spoons, with a distinct bowl and handle, not merely 'spatulae', or even handled spatulae, which are flat implements. However varied in outline some spatulae may be, the functional requirement for a spoon is some attempt at hollowing out a separate bowl, minimal though this may be in some cases. Spatulae have a much more universal distribution in cultures of many periods and areas. Bone spoons are in the case of the FTN consistently associated with the early neolithic, and vanish thereafter, with the exception of one or two perhaps significant examples. The V-base type, however, seems to vanish completely.

Examples of spoons outside the FTN

A number of occurrences of quite well defined spoons, not all by any means associated with the neolithic, can be recalled before moving on to the FTN. There is, for example, the object from a *Gravettian* association at the type site of *La Gravette*, published by Lacorre². Good spoons of bone occur at *Ain Mallaha* in the Natufian³ and also at *Jarmo*⁴, and at *Tell Ramad* in the PPN 'B' (Level I) during the mid seventh to early sixth MBC (=millennium B.C.). From within the same time span, probably dating from the late seventh MBC, come the flat spatulae of *Knossos*, level X⁵, with a marked bowl outline but not hollowed. There are now six of these from these levels. They again precede pottery associations and may be mentioned for their similarity to the objects from Donja Branjevina in the FTN, and perhaps also to some of the flatter spoons from the Cueva de la Sarsa in Iberia. From Thessaly there is an early find from *Sesklo* illustrated by Tsountas⁶ and now in the National Museum, Athens (Inv. No. 6007). The oval bowl is very slightly hollowed and is longer than the handle, which is broken and very roughly made. The whole spoon is about 9 cms. long. The bowl is thick and not polished, nor is it really comparable with the FTN examples. The dating must in any case now remain uncertain. There are two spoons from *Rachmani* in Volos Museum: a handle on which the base of a spoon bowl can just be seen (Inv. No. M2932: 12.5 cms. long), and a spoon with an animal head terminal (Inv. No. M2933: 9 cms. long). M2932 has a bend in the centre of the handle which would form a convenient rest when hooked over the rim of a vessel, and the handle then tapers off to a point. M2933 can be compared with an animal headed spoon from

² Lacorre, F., *La Gravette*, Laval, 1960, Pl. XXII/5.

³ Perrot, J., 'Le Gisement Natoufien de Mallaha (Eynan)', *L'Anthrop.* Vol. 70/5-6 1966, 437-483, fig. 22/22.

⁴ Braidwood, R. J. and Howe, B., *Prehistoric Investigations in Iraqi Kurdistan*, Chicago 1960.

⁵ Evans, J. D., 'Excavations in the Neolithic Settlement of Knossos 1957-60 Part I', *Ann. B.S.A.*, 1964, 142.

⁶ Tsountas, C., *Proistorikai acropolis Diminai kai Sesklon*, Athens 1908, Pl. 46/8.

Turdaş in Transylvania⁷. The context at Rachmani is presumably late neolithic⁸ although it may just possibly be middle neolithic (Sesklo) since they are said to come from all levels. At both *Turdaş* and Rachmani the animal heads protrude sideways to the spoon, in the same plane as the bowl. There are other true spoons at *Turdaş*⁹, and the early Vinča dating of these makes them later than the FTN. Connections between the FTN and Greece at the period of Sesklo are already apparent¹⁰, and continued connections between the later Greek Neolithic and the successors of the FTN may be demonstrable too. The Vinča spoons from the type site can be compared closely with one from Vršnik (q.v., *infra*) which lends some geographical support to this idea.

The Bandkeramik

A number of bone spoons occur in the Bandkeramik, as do spatulae comparable to those found in the Vinča culture¹¹. The spoon from *Hurbanovo* on the Žitava in south-west Slovakia¹² has a bowl of triangular outline, but without the FTN pointed base. In some small points of detail and in specific areas the Bandkeramik bonework may compare with the FTN, so there may be room for some sort of relationship here. For example the Bandkeramik graves at Kleinhadersdorf (Bez. Mistelbach an der Zaya) produced a bone stud from near the neck of a burial in grave 9¹³. This is closely comparable both to the stud from Óbessenyő (Beşenova Veche) in the Banat, from a Körös FTN context¹⁴, and to that from the FTN of Starčevo itself (Belgrade Nat. Mus. Inv. No. 6916, 1932 excavations)¹⁵. These resemblances are important if we consider the studs to be articles of personal adornment comparable to the stone studs both of Greece and the FTN, which are probably labrets (lip plugs)¹⁶, or to the more restricted Horned Pendants of the FTN¹⁷. Such articles make a case for social relationships which may be more convincing than one based on isolated pottery comparisons. And where, as in the case of the FTN and the proximal regions of the Bandkeramik there is already a case for close relationships they serve to strengthen it.

There are two spoons from *Ószentiván VIII*¹⁸ which, like the Bandkeramik ones for example, serve to illustrate that spoons themselves continue after the FTN, even if the classic V-base spoon disappears. These two come from Pit 3 at *Ószentiván VIII*,

⁷ Roska, M., *Die Sammlung Szofia von Torma*, Kolosvar 1941, Pl. LXVII/9.

⁸ Wace, A. J. B. and Thompson, M. S., *Prehistoric Thessaly*, Cambridge 1912, fig. 27.

⁹ Roska, *op. cit.* fn. 7, Pl. LXVI.

¹⁰ Nandris, *op. cit.* fn. 1, 209.

¹¹ *Präh. Zeitschr.* 1960, 170.

¹² *Arch. Rozhledy*, 1956/3, 317, fig. 121.

¹³ *Mitt. Anth. Ges. Wien* LXVI, 1936, 1-16, fig. 3; material in *Präh. Abt. N. Hist. Mus.*, Vienna.

¹⁴ Kutzian, I., 'The Körös Culture', *Diss. Pann.* 1947 (Ser. II, No. 23) (Plates 1944), Pl. XLVIII/2 a-b.

¹⁵ Garašanin, D. A., *Starčevačka Kultura*, Ljubljana 1954, Pl. III/4, at slightly over 1:1.

¹⁶ Nandris, *op. cit.* fn. 1, 198 and map fig. 2.

¹⁷ Nandris, *op. cit.* fn. 1, 207 and map fig. 1.

¹⁸ Banner, J. and Parducz, M., 'Contributions nouvelles à l'histoire du néolithique en Hongrie', *A. Értésítő* Ser. III, vols. VII-VIII-IX 1946-48, Pl. X/4 and 9.

which was a large pit extending over 4.30 metres maximum diameter and 1.55 metres deep, with a great deal of pottery which has been compared by Banner and Parducz with Vinča A. The site in fact raises questions about the transitional period after the FTN, but apart from this Banner and Parducz themselves note that the spoons are not like those from the Körös contexts¹⁹. The complete spoon is 15 cms. long and has a triangular bowl and a slight spur at the base of the handle deriving from the bone used. The bowl of the other spoon is broken, but it may originally have been somewhat shorter and has a round bowl.

Iberia

Although some way removed geographically from the FTN the bone spoons from Iberia deserve mention for two reasons. In the first place specific claims for direct relationships with south-east Europe have been made for them²⁰, and secondly they are, at least in a sense, homotaxial with those of the FTN.

The *Cueva de la Sarsa* produced over a dozen bone spoons according to Topp. San Valero Aparisi²¹ shows two main forms of these, from purely Early Neolithic (Cardial Impressed Ware) contexts. Those in her figure 9, while rather flat, are certainly spoons, and her figure 10, Nos. 4, 5, 11 and 12 shows a distinctive type of spoon with a pointed end to the handle and fine notches along the sides near the bowl, both of which may be functional features. Topp compares the *Cueva de la Sarsa* spoons to those from the *Coveta de l'Or*, also in a Cardial context. The lengths range up to over 19 cms., considerably longer than the FTN spoons. The detailed points of technology and morphology which distinguish the FTN spoons are not represented in the Spanish examples, and Topp's thesis that these constitute some sort of link between Spain and south-east Europe cannot be upheld on these grounds. Nor does there seem to be any other reason to link these two areas. The Cardial Impressed Wares cannot be compared with the Temperate European Impressed Wares (of the FTN) either in shape or decoration, nor in the rest of the associated assemblage. The radiocarbon dates of 4670 ± 160 & 4315 ± 75 B.C. for The *Coveta del 'Or*²² remain the only indication of direct dating.

The only remaining valid point to be made therefore about the spoons in these two contexts is the interesting one of the presence of a well-defined bone spoon type in the earliest neolithic (bearing in mind also the long duration of the Spanish Impressed Ware) in both regions. Some sort of shared functional requirement may be implied, but no sort of necessary connection.

¹⁹ Banner and Parducz, *op. cit.* fn. 18, 39.

²⁰ Topp, C., 'Some Balkan and Danubian influences to southern and eastern Spain' *Arch. Prehist. Levantina*, VIII 1959, 115-123.

²¹ San Valero Aparisi, J., 'La Cueva de la Sarsa (Bocairente-Valencia)', Servicio de Investigacion Prehistorica, Valencia, *Trabajos Varios* Num. 12, 1950, Pl. 1 and figs 9 and 10.

²² *Madrider Mitt.* 6, 1965, 12.

Western Anatolia

There are spoons in Anatolian contexts which are more closely relevant to the FTN than the examples external to the FTN mentioned above, especially to the Bulgarian aspect of the FTN. From *Çatal Hüyük* comes the ladle found with the burial of a mother and child in level VIII²³ probably to be dated early in the sixth millennium B.C., and one from level II²⁴ which is flatter and must date nearer 5500 B.C. These levels are those in particular in which stamp seals are found. The seals from *Çatal Hüyük* together with those from Nea Nikomedeia form together the best antecedents for the Greek and south-east European seals, for which there are no equally convincing Near Eastern sources. At *Hacilar* too we have spoons²⁵ from level VI, very shortly after the middle of the sixth millennium B.C. and in a level which has produced at least six slotted antler sickles with flint insets²⁶. Here again we are in the realm of significant connections with south-east Europe, for the spoons from *Hacilar* VI are closely similar to the rather distinctive group of Bulgarian FTN spoons, in which the V-base is played down in favour of the rounded base to the bowl, perhaps with the suggestion of a point, as in the left hand example from Mellaart 1961, Pl. V/c, but often with a marked round base, as in the right hand example from *Hacilar* in that plate. The Bulgarian FTN stands apart in several ways from the rest of the FTN, although visibly part of the FTN phenomenon and in particular of the Macedo-Bulgarian zone²⁷. One way in which it shows individuality is the emphasis on the slotted antler sickle, of which there have now been found substantial numbers in the Bulgarian FTN, as for example three dozen from Karanovo and a score from Kazanlik, together with other sites including Asmaška and Golemata Peštera. This sickle was also found in Roumania at Valea Răii²⁸, in a large storage vessel from a Criș site which also has very varied painted ware and bone spoons. Bone spoons also occur at the same Bulgarian sites which have slotted sickles. As an intermediary site it is clear that the small flat mound of *Fikirtepe* on the Bosphorus must have an important place, which should emerge with its fuller publication. The dark-faced wares with burnish and incised white-encrusted decoration, often on square shapes, are not precisely to be paralleled in the Bulgarian FTN, but on the other hand the bowl and bottle shapes found at *Fikirtepe* are not entirely foreign to the Macedo-Bulgarian region, and in this particular context it is the bone spoons from the burials which are of particular interest. There are at least three of these, with straight handles of round section, and broad oval bowls comparable again to the Bulgarian type. One has a slight peak at the base of the bowl, seen in profile, which is also found in the FTN shapes (e.g., Mužlja).

²³ Mellaart, J., 'Excavations at *Çatal Hüyük*, 1963, *Anatolian Studies* XIV, 1964, 101, fig. 43/13.

²⁴ Mellaart, *op. cit.* fn., 23, fig. 45/14.

²⁵ Mellaart, J., 'Excavations at *Hacilar*, fourth preliminary report', *Anatolian Studies* XI 1961, Pl. V/c.

²⁶ Mellaart, *op. cit.* fn. 25, Pl. IV/a.

²⁷ Nandris, *op. cit.* fn. 1.

²⁸ Berciu, D., *Zorile Istoriei în Carpați și la Dunare*, Bucharest 1966, Pl. 1/a, b.

A conclusion which might be drawn from Anatolian-Bulgarian resemblances in the spoons, supported by the distribution of the slotted sickles, is that the eastern part of the FTN in Bulgaria and southern Roumania may have its own significant north-south connections with Anatolia, just as the western part certainly has them²⁹ with Greece via the Vardar and Morava. The mediating area is in both cases the Macedo-Bulgarian region, but the geographical constraint of the river valleys is absent from the eastern part of the area, and the ecological framework is somewhat different.

Bone spoons in the FTN

Within the FTN itself the V-base spoons are notably consistent in shape, and Bulgaria east of the Iskr stands slightly apart but still within the region. It remains to comment only briefly on the most informative individual sites.

In Bulgaria the eastern area has spoon bowls with a rounded bowl shape close to the Anatolian ones; the Kremikovci area in the Sofia basin has the more elongated form found elsewhere in the FTN, although this has not yet been found in the Kremikovci sites of the Vratsa region to the north. A specific comparison for the shape from Hacilar VI³⁰ can be found for example at *Malkata Peštera*³¹. Several spoons were found at *Asmaška* in the Karanovo I levels³², where Georgiev found them near querns. The basal levels of *Karanovo* have also yielded at least two spoons from Macedo-Bulgarian FTN contexts. The pointed base of the bowl is again present, and the transverse groove on the base of the handle³³ together with oblique wear on the bowls. Georgiev³⁴ notes two spoons from Karanovo of which one, 13.5 cms. long, was lying on a quern, and the other, which is 17.5 cms. long, has a spur on the end of the handle. The greater length than usual and the spur of this example indicate that some other bone may be used for some spoons, particularly in the Bulgarian area (one of the longer 'typical' spoons, from Crnokalačka Bara, is 16.4 cms. long). Both these spoons however have quite marked pointed bases. There are a further two from *Stamovo* (Asparuchovo) near Nova Zagora. *Malkata* and *Golemata Peštera* near the Preobrazenski monastery at Trnovo have both produced a spoon; and we have already compared that from *Malkata Peštera* with Hacilar VI. Georgiev further mentions three spoons from the *Preslav* settlement, and one from *Kapitandimitrievo*, in southern Bulgaria. *Kazanlik* and *Čavdar* have both produced numbers of spoons, and from *Muldava* there are examples with rings and grooves decorating the shafts.

²⁹ Nandris, *op. cit.* fn. 1.

³⁰ Mellaart, *op. cit.* fn. 25, Pl. V/c.

³¹ Gaul, J. H., 'The Neolithic in Bulgaria', *B.A.S.P.R.* 16, 1948, Pl. XVI/12.

³² Georgiev, G. I., 'Beiträge zur Erforschung des Neolithikums und der Bronzezeit in Südbulgarien', *Arch. Austr.* No. 42, 1967, fig. 6 (14.5 cms. in length).

³³ Georgiev, G. I., 'Kulturgruppen der Jungstein—und der Kupferzeit in der Ebene von Thrazien', Pl. IV/7, 8, in Böhm and de Laet (eds) *Symposium L'Europe à la fin de l'âge de la pierre*, Prague 1959 (1961), Czechoslovak Academy of Sciences.

³⁴ Georgiev, G. I., in Dečev, D., *Festschrift Izsledvanija v čest na akad. Dimitr Dečev po slucaj 80-godisnata mu*, Sofia, Bulgarian Academy of Sciences 1958, 373–376.



Key to Map

Figure 1

Sites with Slotted Bone Sickles (often in considerable numbers; see text) are shown by the horizontal text symbol.

The sites with FTN spoons are numbered according to the schedule. The balance of distribution of numbers of spoons is different from that of sites, as can be seen from the text and schedule, with more than 75 per cent coming from sites 6 to 19, in eastern Hungary and The Bamat.

Also within the Macedo-Bulgarian zone, but lying in Yugoslav Macedonia, are two important sites excavated by M.V. Garašanin, both of which have yielded bone spoons. *Vršnik* has produced a bone spoon³⁵ from stratum II, with black-on-red painted wares, which succeeds that with white-on-red wares at the base of the site. Level III which follows has several radiocarbon dates indicating that it lies around 5000 B.C. Black-on-red wares with linear designs continue in this level, with grey and also black monochrome wares on the increase. The spoon in stratum II (which also includes coarse wares, linear barbotine, rippled grey wares with high feet, as well as some nail-impressed and monochrome wares in continuation of stratum I), is therefore well stratified in relation to pottery sequences and such dating as exists. It is 18 cms. long, with a plain triangular bowl, not of V-base type, and a tapering handle. Typologically it can be compared with some later spoons from Vinča³⁶. By virtue of its stratification it is important in the Macedo-Bulgarian development of the FTN, emphasising in the bonework the regional development already apparent here in the pottery. A more recent find from *Amzabegovo* balances this by bringing the region firmly within the distribution of the true V-base type of the FTN. The *Amzabegovo* spoon has all the main characteristics of the FTN spoon and represents the southernmost example known. The site has also produced, from another context, the northernmost example of painted motifs, in white-on-red, which compare with the solid style painting of Tsani in early Sesklo. The Macedo-Bulgarian Solid Style³⁷ on the *Amzabegovo* vase itself already clearly illustrated this relationship, but more specific isolated sherds occur at *Amzabegovo*. The effect of the V-base spoon and the painted wares at this site is to emphasise and confirm the importance of the Macedo-Bulgarian region as a mediating zone³⁸ lying between the Mediterranean region and Temperate south-east Europe.

The spoons in the remaining FTN contexts are concentrated in the Körös and Starčevo regions, with examples from Moldavia and Transylvania to the north-east, and from Bosnia in the south-west. All are listed below and only one or two call for additional comment. That from *Bubanj Hum* near Niš in the Morava valley is of considerable interest in showing a direct association between an FTN Rod Head figurine, various painted and impressed wares, and a bone spoon. These come from the same pit rather than, as is often the case, merely from the same site. Until the discovery of the *Amzabegovo* spoon this was the southernmost spoon of V-base type. The Starčevo settlement at *Bubanj* originated on a high bank of pebble conglomerate covered with loess, forming the tip of a spur beside the Nišava river. It overlooks the flat water meadows and the whole area of junction of the Nišava and Morava some

³⁵ Garašanin, M. V. and D. A., 'Neolitiska naselja Vršnik kaj selo Tarinci', *Zbornik Štipskiot N.M. II*, 1961, fig. 37.

³⁶ Vasic, M. M., *Preistoriska Vinča*, Vols. I-IV, Beograd 1932-36, Vol. I, Pl. XVI/75.

³⁷ Nandris, *op. cit.* fn. 1, 206-7.

³⁸ Nandris, *op. cit.* fn. 1, 208.

7.5 kilometres away. Pit G1, cut in the loess at the base of the settlement mound, contained earth mixed with ash and many bones and sherds. It was about 1.20 metres deep and round in outline. At the very base was the bone spoon, and a small Decorated Rod Head of unburnished light brown clay³⁹. The pit contained nail-impressed wares and painted wares going right down to the base. The painted ware comprises black-on-red sherds, and one black-on-yellow, while stand-foot bowls with the familiar Starčevo designs can be reconstructed. There is also a rough-ware sherd with incised lattice design; and a flat-based coarse vessel 21.6 cms. high of barrel shape with four vertically pierced lugs, of light brown clay burnished internally and on the rim, but rough outside. The figurine and the spoon were deposited first in the pit, followed by pottery and bones accompanied by burning.

This find brings the spoons into direct relation with the Rod Heads of the FTN⁴⁰.

Galović excavated good examples of V-base spoons at *Crnokalacka Bara* and there are further more or less fragmentary ones from the excavations of Tasić and Tomić at the same site. In the Vinča levels excavated by Galović here a broken forked bone handle has a crescentic end paralleled on the Tordos spoons⁴¹ but more recent discoveries at Drenovac nearer at hand in the Morava valley have produced a complete stratified example of this object from level 19, in an early Tordos context, identical to that from Tordos and with small nicks across the completing part. It may have a function in weaving or some similar occupation.

The spoons from *Obre I*, five kilometres south of Kakanj on the Bosna, include two from the lowest levels of the site which again produce a Rod Head type and can be compared to the FTN of Starčevo. This is the most westerly FTN site. There are also quite well made pins of bone. One of the spoons is rather flat, but the other is a well polished spoon with a rounded base to the bowl⁴².

A spoon from the site at *Mužlja* in the Yugoslav Banat does not belong to the classic Amzabegovo type of FTN spoon, but it has a marked peak in profile at the base of the bowl. The associated material from the pit at Krstičeva Humka from which it comes is unpublished, but comprises a rich and varied assemblage of painted and other wares. There are black-on-red, white-on-red and polychrome sherds of three colours, as well as incised and impressed wares of various sorts, black Arcaded Barbotine⁴³, plastic decoration, blobby barbotine and other forms. Classic Starčevo black-on-red painting is certainly present, but the spoon cannot be associated with any particular part of the assemblage, which is itself unusual enough to prompt further excavation here.

³⁹ Oršić-Slavetič, A., 'Bubanj. bei Nis.' *Mitt. P.K.A.W.*, IV, 1-2, 1940, Pl. 1/5.

⁴⁰ Nandris, *op. cit.* fn. 1, 208-8 and map fig. 2.

⁴¹ Roska, *op. cit.* fn. 7, pl. LXVII/14 and 15.

⁴² *Archaeology* 23/4, 1970, 294; no scale.

⁴³ Nandris, *op. cit.* fn. 1, 206.

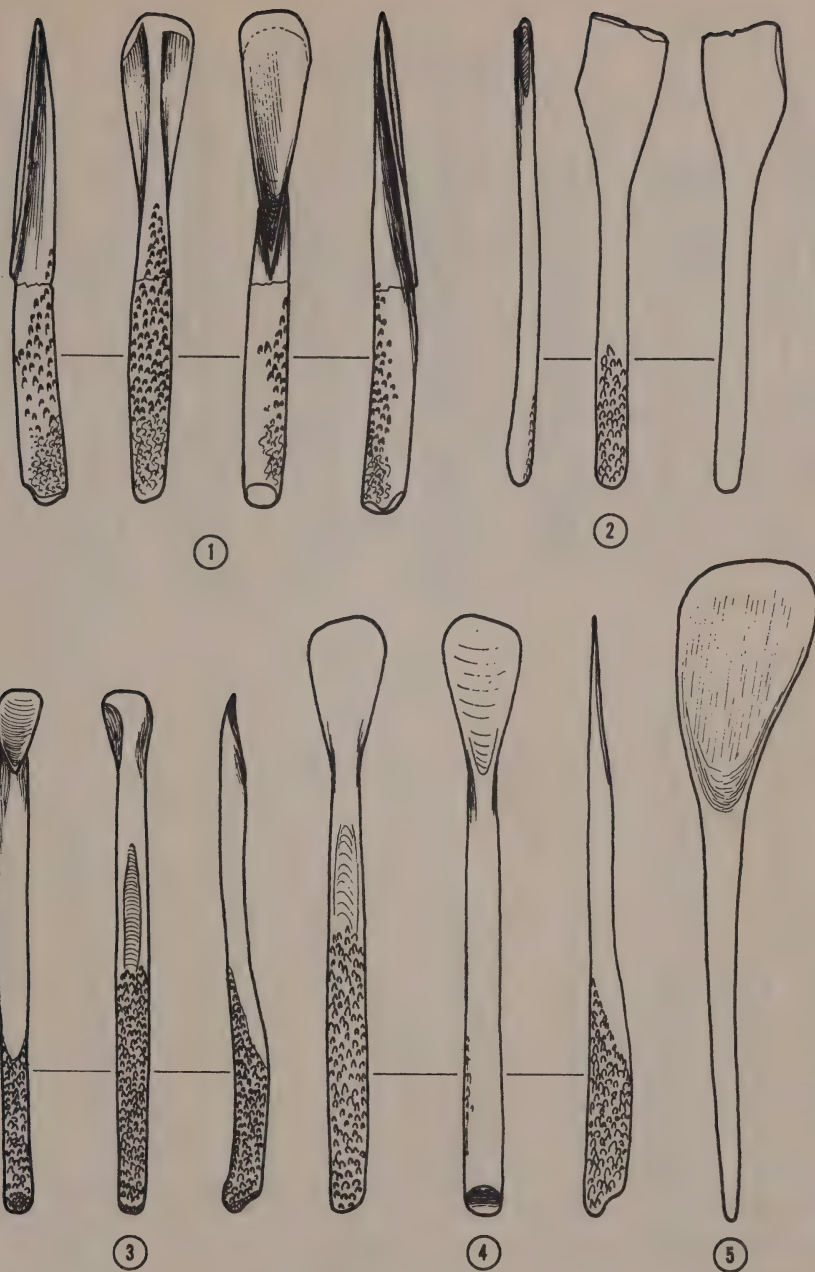


Figure 2 (Scale: 1/2)

- 1 Amzabegovo
2-4 Crnokalačka Bara
5 Vršnik

Štip Museum
Belgrade National Museum
Štip Museum

A/254/ 7
16.078
15.978 16.152

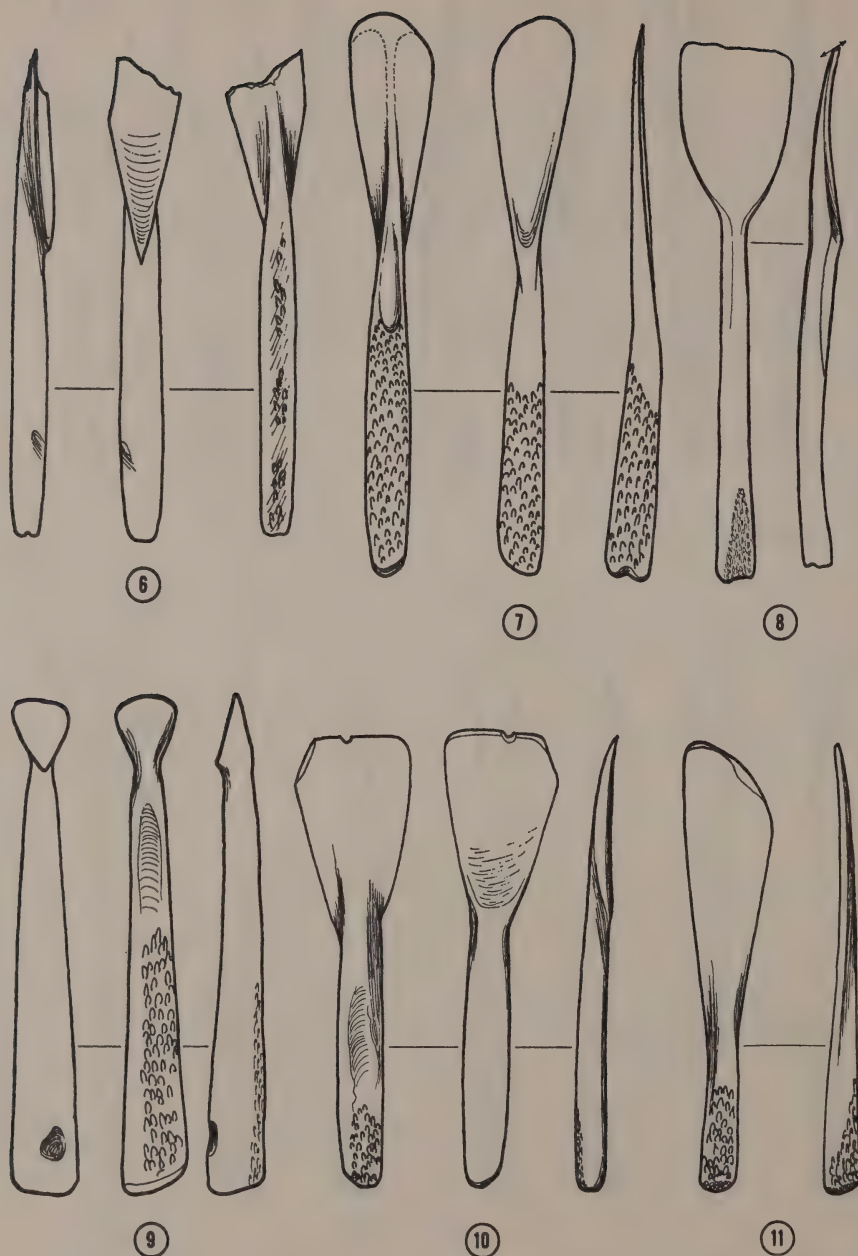


Figure 3 (Scale: 1/2)

6-7 Grabovac
8 Mužlja
9-11 Starčevo

Muzej Grada, Belgrade
Zrenjanin Museum, 1279
Belgrade National Museum 1991 11.791

Distribution and Significance

Of the known spoons in the FTN excluding Bulgaria over fifty per cent come from the Körös area alone; or if we add to this region Starčevo, Obrež and Grabovac more than seventy-five per cent of the spoons are accounted for. This distribution has to be considered not only in relation to the archaeology but also in relation to that of the fauna from which the raw material for the spoons was derived. We have seen that the osteology and typology of the V-base spoons are extremely distinctive, and peculiar to the FTN. The classic type of the spoon does not occur in the Bulgarian FTN of the Maritsa basin, which also stands apart in its archaeological traits within the FTN, and can be separated ecologically within the Macedo-Bulgarian area. It belongs much more clearly to the mediterranean aspect of this transitional zone, with the appropriate vegetational and faunal differences. It is therefore quite appropriate to find that within the FTN of this region the spoons are distinctive, relate to those of Fikirtepe and Anatolia in general, and may perhaps be made from a different bone or a different animal from those elsewhere in the FTN. I have not had the opportunity to examine carefully very many of the Bulgarian or Anatolian spoons, but they should certainly be considered as a body from this viewpoint.

As regards the spoons from the FTN proper, the question of the bone consistently selected as the basis for the strikingly uniform process of manufacture has never received the attention which one would have thought it merited. To get the necessary thickness of shaft without encountering marrow cavity the long bone of a large animal is necessary. The consistent dimensions and the presence of cancellous tissue seem to indicate that the blanks can just be fitted into the length of the bone used and that it is there approaching the articular end. Bearing in mind the fauna available to First Temperate Neolithic people, and the size and thickness of the walls of the various long bones, it would seem that metapodials, and in particular the metatarsal of *Bos primigenius*, are a most suitable candidate. Bökönyi⁴⁴ gives various measured lengths for metapodials, but that of the longest metatarsal for instance is 27.9 cms. It can be seen from modern examples of about this size that when one allows for epiphyses and foramina at both ends one is left with a usable length of shaft of about 15 cms., as in the spoons, and even then the cancellous tissue which particularly invades the distal end in the internal structure has to be tolerated in the handle of the spoon. It is difficult to reproduce all the features of the spoons in ignorance of the method of manufacture and exact part of the bone represented, and it may be that there is some more suitable bone among the bovids, pig or deer of the FTN fauna. It is by no means easy however to find other massive bones, and the derivation from *Bos primigenius* would be very appropriate for a number of reasons. The spoons could in fact form a remarkable nexus between the preoccupations of hunting and domestication of the wild cattle on the one hand; and on the other the arts of domestication within the household, the preparation and consumption of cereals from pottery vessels for example.

⁴⁴ Bökönyi, S., 'Zur Naturgeschichte des Ures in Ungarn und das Problem der Domestikation des Hausrindes', *A. A. Hung.*, 1962, 175-214.

Bökönyi⁴⁵ has summarised the history of *Bos primigenius* in Hungary and stressed its importance in the settlement fauna of the neolithic. Clason⁴⁶ also gives indications of the especial importance in Hungary of the hunting of the aurochs in the early neolithic and right up to Herpály, Lengyel and Bodrogkeresztúr times. As a thermophilous animal the aurochs came into its own only in the Neothermal and especially in the equivalent of the Atlantic or Altithermal, to which the settlements of the FTN belong. The Körös group especially is situated in the flat lands which again were particularly favoured by the aurochs, at least until well on into the historic period. At the end of the migration period in the seventh to ninth centuries A.D., the cattle had retreated to upland and boggy areas, until by the thirteenth century the starvation following on the Tartar invasions had involved the final sacrifice of the Hungarian aurochs, although it survived in Poland until 1627. The most intensive hunting was in the neolithic and in the copper age in Hungary. In some neolithic settlements 53 per cent of all bones and 39 per cent of individuals belong to *Bos primigenius*, while Bökönyi⁴⁷ quotes it as providing c. 65–70 per cent of meat weight in the total of neolithic settlements examined. It was especially important too in the early copper age, in Lengyel, Tiszapolgár and Bodrogkeresztúr, leading at the end of the copper age and in the EBA to a diminution of the herds. It is much rarer in the Bronze Age fauna, where if present at all it remains below the five per cent level in the settlements, and in Roman settlements seldom reaches the one per cent level.

It is clear that *Bos primigenius* had considerable economic importance in the early neolithic including the FTN, and then especially in the copper age. It must have contributed a great deal to the stability and prosperity of these periods. It may be observed in passing that, although skulls are rare, Bökönyi does illustrate one⁴⁸, from a copper age context which could have been pole-axed. Since the function of the copper shaft hole axe-adzes and similar tools of Bodrogkeresztúr in particular has not yet been adequately explained we could consider a possibility at least as realistic as that of their use for mining; namely that they were used at least in part in the butchery of these massive animals. The processes of domestication in which the aurochs was in all probability involved (the skull mentioned above is in a context exemplifying the crossing of wild and already domesticated forms) make this all the more likely. As a sole explanation for the copper tools it may be unsatisfactory; but it is the case that the cattle, the copper tools and the gold work of this period are together evidence of considerable prosperity, and we should consider how far they were bound up in one economic mechanism. They inevitably were related together, with a nexus which may range from the most functional economics to that of status in society bound up with wealth. Changes in the totality of relationships within this economic and social mechanism are of far greater importance than bronze metallurgy alone in the initiation

⁴⁵ Bökönyi, *ibid.*

⁴⁶ Clason, A. T., 'Animal and Man in Holland's Past', *Palaeohistoria* XIII 1967, 202 and diagram LXVII.

⁴⁷ Bökönyi, *op. cit.* fn. 44, 185.

⁴⁸ Bökönyi, *op. cit.* fn. 44, 205, fig. 4.

of the ensuing period of visibly different character, which we call Early Bronze Age. As is well known bronze is not detectable until this Hungarian Bronze Age was well under way, a phenomenon paralleled in the case of the Aunjetitz. The decline of *Bos primigenius* to below the five per cent level is a much more immediate expression of these changes, which is not to say that it is their sole initiator.

Summary

Although in itself an apparently trivial trait the V-base spoon does raise a number of points of interest and issues which ought to be settled. In conclusion, therefore, some of the points may be summarised as follows:

i) The V-base spoon is clearly defined on osteological and technological grounds.

ii) The archaeological, geographical and chronological contexts are also clear and coincide with the First Temperate Neolithic.

iii) The specific type in question is restricted to the FTN.

iv) Close relations are apparent with Anatolia, supported by the evidence of Slotted Antler Sickles, and pointing to north-south relationships in the eastern part of the FTN area.

v) Spoons are found sporadically in later contexts (Bandkeramik, Vinča) which are not V-base, but may be archaeologically related. Other contexts external to the FTN do not relate to it. This is true of the Iberian spoons, although the functional presence of the spoon in the earliest neolithic in both cases is of some interest.

(vi) Over 75 per cent of the spoons come from the east Hungarian basin and Yugoslav Banat, although equally characteristic examples should be noted from the southern, western, and north-eastern extremities of the FTN distribution.

vii) Technologically speaking, the Bulgarian spoons stand slightly apart, together with Anatolian examples, but within the V-base tradition.

viii) Identification of the very specific bone from which the V-base spoons were made is uncertain but a metatarsal of *Bos primigenius* is one possibility. This can be related to the importance of the species in this and subsequent periods in Hungary, but the cultural preference for the V-base spoon did not survive into the later periods.

ix) Attention to the bone remains from FTN settlements may yield traces of manufacture or other indications for the identification of the very specific bone employed. This would then enable some assessment of the importance of the particular animal in question within the economic and cultural system of these people to be made. Some remarks to this end have been made above on the assumption that *Bos primigenius* may be involved, but prolonged comparison is necessary of more original spoons and bone material than are available to me at present. It is clear in any case that the aurochs was very important during this period, and a realisation of this may help to enlarge our rather restricted conventional view of the early settlement of south-east Europe.

SCHEDULE OF FTN BONE SPOONS

No.	Site	Quantity (minimum)	Reference	Remarks
1	Glăvănesti Veche	1	SCIV 2/1, 1951, 56, fig. 5	
2	Valea Lupului	Several	SCIV 2/1, 1951, 59	Described as similar to Glăvănesti Veche; numbers not given.
3	Leț	1	Dacia 1962, 5-51, fig. 20	
4	Valea Răii	Several	Berciu 1966, 72	
5	Schela Cladovei	7+	Unpublished material	Courtesy V. Boroneanț
6	Tiszaug-Tópart	5	Kutzián 1944, Pl. IX	
7	Tiszaug	1	Thomas 1956, 64 National Museum, Budapest	15.5 cms. long. Ogival point. Well polished.
8	Vata Tanya	2	Kutzián 1944, Pl. XLVIII/19-20	
9	Zsoldos Tanya	8	Kutzián 1944, Pl. XLVIII/11-18	The thick handles and foramen at base of handle compare with Starčevo itself.
10	Maroslele Pana	2	Trogmayer 1964, 72, fig. 5/3-4 Szeged museum: Inv. Nos. 63.1.512; 63.1.513	Spoon (No. 513) from Pit 4, with a great deal of Impressed Ware; and Pit 7, which contained a neolithic burial (No. 512).
11	Srpski Krstur	1	Kutzián 1944, Pl. XLVIII/I	
12	Nosa Gyöngypart	1	Subotica Museum	
13	Ludaš	6	Arheološki Pregled 9, 1967, 11 Subotica Museum	Sharp V-base present.
14	Besenova Veche	4	Comsa 1959, Pl. 1/20-23	
15	Mužlja	1	—Zrenjanin Museum, (Inv. No. 1279). Unpublished material	
16	Donja Branjevina	—	Odžaci, Archaeological Collection	(Handled Spatulae: Site D on map).
17	Starčevo	8	Garašanin, D. A. 1954, Pls. I and II. Kutzián 1944, Pl. LV, after Fewkes	
18	Obrež	2	Rad Voivodjanski Muz., 9, 1960, 91	Novi Sad Museum. Lengths 11 cms. and 9.5 cms.
19	Grabovac	2	Arheološki Pregled 9, 1967, 9 and Pl. I	Spoons 13.1 and 14.1 cms. long. Excavated September, 1967.
20	Obre I	1+	Archaeology 23/4, 1970, 294	
21	Divostin	Several	Kragujevac Museum. Unpublished material	Several spoons from recent excavations.
22	Tečić	1	Galović, 1968, Pl. 11/4; BRGK 43-44, 1962-3, Pl. 11/3d	12.7 cms. long. Galović 1968 marks small nicks along the edge of the bowl.
23	Crnokalačka Bara	3+	Galović, Arheološki Pregled 2, 1960, 26. Tasić and Tomić 1969, Pl. XVII	

BOS PRIMIGENIUS AND THE BONE SPOON

SCHEDULE OF FTN BONE SPOONS (continued)

No.	Site	Quantity (minimum)	Reference	Remarks
24	Bubanj	1	Oršić-Slavetić 1940, Pl. 1/7	Broken handle. Surviving total length 10.6 cms. Bowl 2.7 cms. wide. Association with painted wares and Rod Head figure.
25	Amzabegovo	1	—Štip Museum. Unpublished material	
26	Vršnik	1	Garašanin, M. V. 1961, fig. 37	Not V-base (Site F on map).
27	Kapitan Dimitriev	1	Georgiev 1958, 373-376	
28	Kazanlik	+	Unpublished material	
29	Asmaška	+	Georgiev 1967, fig. 6	
30	Stamovo	2	Georgiev 1958, 373-376	
31	Karanovo	2+	Georgiev 1958, 373-376 Georgiev 1959, Pl. IV/7, 8	Sharp undercut V-base, and spur on handle.
32	Golemata Peštera	1	Georgiev 1958, 373-376	
33	Malkata Peštera	1	Georgiev 1958, 373-376	
34	Delčevo (Preslav)	3	Georgiev 1958, 373-376	
35	Muldava	+	Unpublished material	
36	Čavdar	+	Unpublished material	
37	Fikirtepe	3	Unpublished material	(Site L on map) not FTN.

ADDENDUM

The manufacture of a V-base bone spoon

It has proved possible, since the above article was written, to reproduce exactly the characteristics of the First Temperate Neolithic spoons. This puts it beyond reasonable doubt that a bovid metapodial was used. The example made by the author (Plate 1) was made on a modern bovid metatarsal only 21.7 cm. long, and therefore a comparatively small bone. The resulting spoon is 18.8 cms. long, and thus in the upper range of size for F.T.N. spoons, so that large size was clearly not the main condition in mind originally. The main requirement would seem in fact to have been good solid bone for the bowl. The features seen on the hafts of these spoons in no way detract from their use; the cancellous tissue is neither fragile nor unpleasant to handle, and has the advantage of relative ease of working over solid bone when grinding the handle into shape. It seems most likely that in fact it was the *metacarpal of Bos primigenius* which would have been favoured. This bone takes the weight of the massive forequarters and is shorter and stouter than the metatarsal, with thicker walls. The haft of the present spoon is thinner than would have been obtained from a *Bos primigenius* metacarpal.

The bone spoon lies within the metapodial in the orientation indicated in the diagrams (Fig. 4/1-4). The hollowed bowl faces outwards laterally within the bone. The groove at the back of the spoon handles is not really a *sulcus* but merely the concave inner wall of the bone partly preserved. The groove across the base of the handle is the remains of the distal articular surface. The pit at the base of the handle is the hollow found on the metapodial opposite the sesamoid bones. It is essential to use a bone from a mature animal with well fused epiphyses, and the drawing of the spoon from Amzabegovo (Fig. 2/1) represents two different types of cancellous tissue in the haft, which can now be seen to be those of the shaft and epiphysis respectively. All the osteological traits are thus accounted for.

The first step in manufacture is to split the metapodial. This is easily done by wedging between the distal articular ends (Fig. 4/1) since the bone is composed of two fused metapodials. This technique had long been used, at e.g. Nea Nikomedia or Čavdar, to produce bone awls from small (sheep/goat) metapodials. Some of these awls show traces of grinding such as might have been used to form the hafts of spoons.

After splitting, the proximal epiphysis and as much of the shaft as required may be removed by grooving across the shaft (Fig. 4/2) and a blow from the opposite side. The bone fractures in the manner indicated (Fig. 4/3). It may then be ground flat, and the haft formed by grinding. The grooving which shapes the bowl gives the distinctive pointed V-base (Fig. 4/4), while grooving and scraping in the same direction on the back of the bowl is necessary to thin it out. The presumption is that flint tools were used for the grooving and scraping operations, as well as for the hollowing of the bowl. Close attention to bone debris from sites may produce traces of this



Plate 1. A reconstruction of a V-base Bone Spoon of the First Temperate Neolithic.
(See Addendum) 18.8 cms. long.

process in the future, while the tool assemblage of the F.T.N. should be examined for suitable scrapers and grooving tools, which could be quite generalised in themselves.

A metapodial from Lepenski Vir II (Srejović.D; *Lepenski Vir*, London 1972; figure, 39) is of importance as being perhaps the best candidate so far for a rough-out of such a spoon. The presence of a type both specific to the F.T.N., and also apparently in course of manufacture, in these levels which have two radiocarbon dates in the 47th century B.C., supports the author's interpretation of that site (forthcoming review: *P.P.S.* 38, 1972).

The final question of importance is now whether the *Bos primigenius* from which these spoons were obtained over such a wide area, and restricted context, were wild or domestic animals; and indeed precisely what the domestic relationship entailed in the F.T.N. Some steps towards answering this question might be taken by the analysis of the bone densities of original spoon material from the F.T.N. area. With the new certainty of the attribution to *Bos primigenius* made possible by the reconstruction it seems important to emphasise once more the Temperate European associations of this animal and of its context. A glance at the map will show that the spoons fall into two main groups, and of these the Bulgarian group stands somewhat apart. It has been indicated above that its spoons are also slightly different, but a relationship to Anatolia still includes a strong component of early cattle herding or hunting. As far south as Amzabegovo the spoon type of the other group is distinctively Temperate European, and Greece lacks it entirely. As with the Decorated Rod Heads (Nandris *op. cit.*, fn. 1) it was evolved in the F.T.N. area. Such small details are ultimately going to be important in resolving the precise relationship of Temperate Europe to the mediterranean zones at this period.

Note on Illustrations

The spoons on figures 2 and 3 are original drawings selected from good available examples to show variations on the most characteristic V-base type, which is itself well exemplified by numbers 1, 3, 4, 7 or 9. Other spoons may be found illustrated where reference is given in the Schedule.

Acknowledgements

I am indebted to Prof. M. V. Garašanin for permission to include the spoon from his recent excavations at Amzabegovo and that from Vršnik; to Mr. R. Radičić for the material from Mužlja; to Dr. Jovan Todorović for that from Grabovac; to Dr. Radoslav Galović for allowing me to use the spoons from Crnokalačka Bara; and in general to all those who have facilitated access to their sites and material. Dr. I. W. Cornwall made many helpful suggestions. Mrs. V. M. Conlon took the photograph in Plate 1 and Miss A. Tuckwell drew Figure 4.

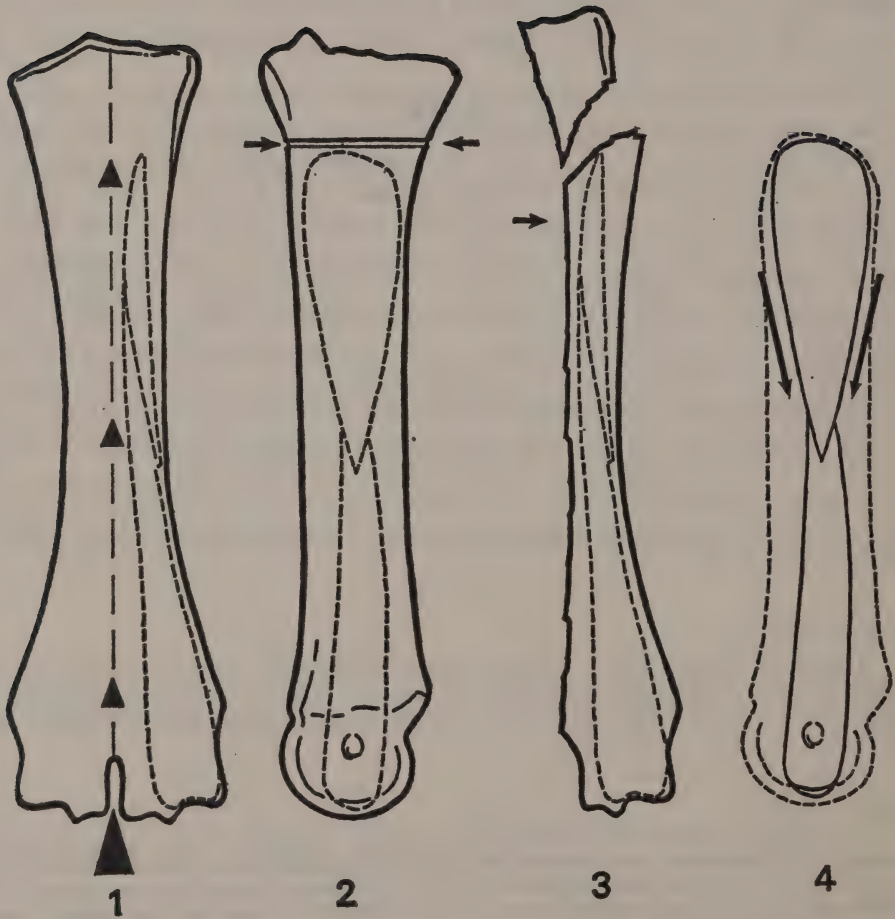


Figure 4. Stages in the manufacture of a V-base spoon (half-size).

Etched Cornelian Beads

by E. C. L. DURING CASPERS

Etched cornelian beads of various shapes form a distinctive group with a wide distribution ranging from the Indus Valley region¹—whence they originate²—and the Arabian coast³, to Iran⁴ and Mesopotamia⁵.

The main forms are square, round, oblong, elliptical or barrel-shaped, and they all have a round or elliptical cross-section⁶. The geometrical patterns are always engraved on both sides of the beads, obviously for the sake of symmetry. The variety and popularity of certain patterns vary at different sites, but this is undoubtedly due to their rarity and to their relatively infrequent occurrence everywhere.

The designs most popular on the majority of the sites are various 'eye' and 'spectacle' motifs (Fig. 1, 1–10) and patterns consisting of figures-of-eight which may be developed into a guilloche of three interlocking circles. Beads with parallel lines and chevron designs occur at many of the sites (Fig. 1, 18–23) and interlinked concentric circles on barrel-shaped, oblong, square and round beads are fairly well represented (Fig. 1, 11–17). Square, oblong and barrel-shaped beads with rectilinear lozenge patterns filled in with single or concentric circles are less common (Fig. 1, 24–29), but they are important in that they bear witness to a link between Sumer and the Indus Valley. Rare, but also indicative of contact between the civilisations of Mesopotamia and India, are beads which have a very distinctive compartmented pattern (Fig. 1, 30–31).

In accordance with the techniques employed in the engraving, the beads may be divided into three groups of which the first is the most common and the third extremely rare.

¹ Mackay, E. J. H., 'Further links between Ancient Sind, Sumer and elsewhere', *Antiquity* V (1931), 459–473; Beck, H. C., 'Etched Cornelian Beads', *Antiquaries Journal* XIII (1933), 384–398; Wheeler, R. E. M., *The Indus Civilization* (Cambridge University Press 1960), 81–82. Beck, *op. cit.*, 384, mentions that beads of agate and chalcedony have been etched in a similar way.

² At Harappa, Kalibangan, Mohenjo-daro, Chanhudaro and Lothal.

³ At Umm an-Nār. I am greatly indebted to Professor P. V. Glob, for allowing me to study the Umm an-Nār material at the Pre-historic Museum, Aarhus in 1964.

⁴ At Susa, Kalleh Nisar, Tepe Hissar, and Shah Tepe.

⁵ At Ur, Nippur, Kish, Tell Asmar, Aššur and Tell Brak (?).

⁶ Their measurements vary from about 0.5 x 0.7 cm. to 1.5 x 0.9 cm. for the oblong and barrel-shaped beads and from c. 0.5 x 1 cm. to 1.5 x 2.5 cm. for the oblong beads with elliptical cross-section. The round elliptical beads usually have a diameter of 1 cm. The square beads measure c. 1.5 x 1.5 cm., while beads with compartmented design are slightly larger and measure c. 1.2 x 1.8 cm.

E.C.L. DURING CASPERS

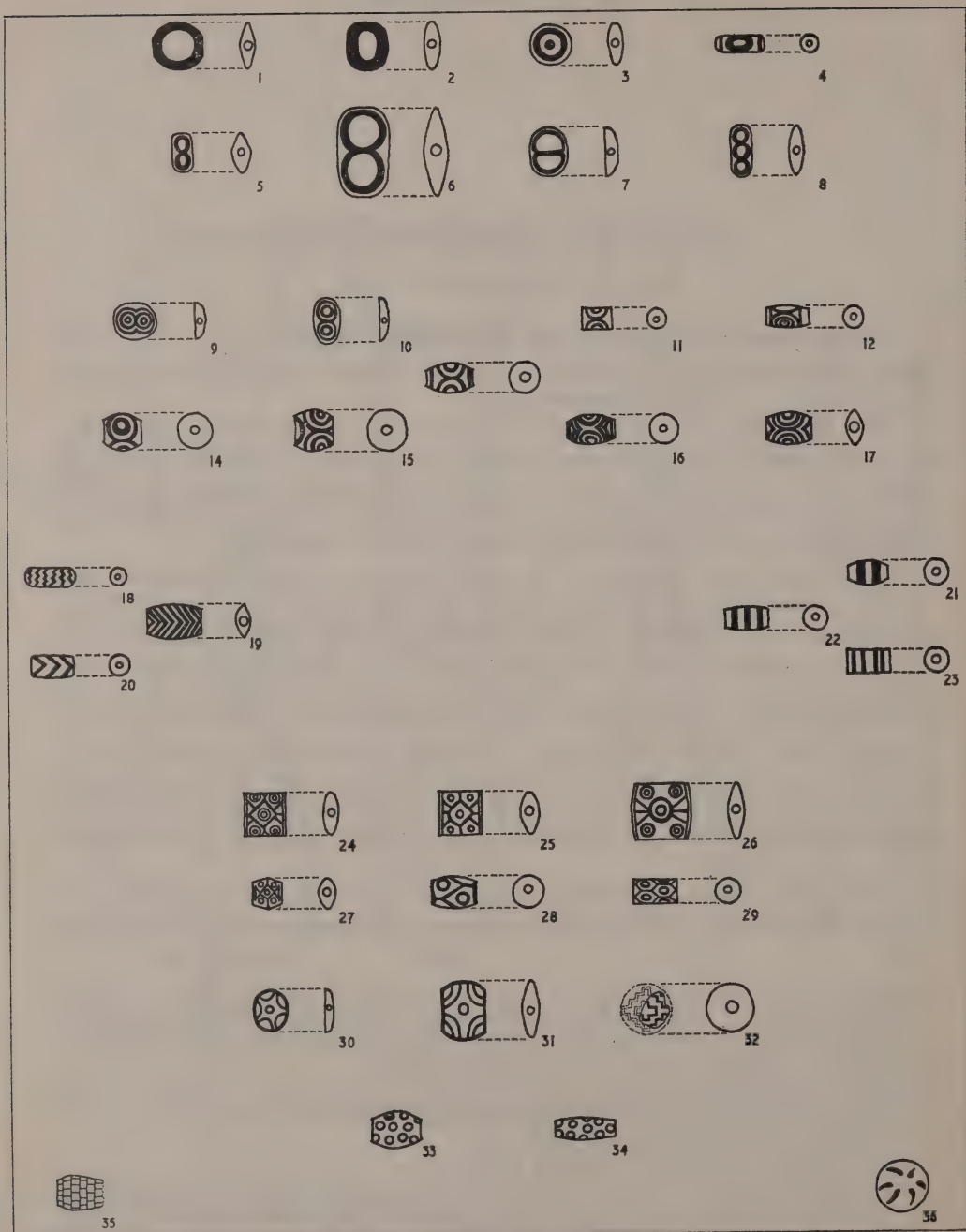


Fig. 1. Etched cornelian beads from Mesopotamia and the Indus Valley.

After H. C. Beck, *Antl. Journ.* XIII 1933, and E. H. J. Mackay, *Chandu-daro Excavations 1935-36* (New Haven, 1943).

ETCHED CORNELIAN BEADS

By the first method (Type I), a pattern was etched on the red cornelian background by means of an alkali solution, generally soda, which after heating entered the stone thus causing permanent white designs⁷.

By the second method (Type II), the stone was whitened completely through flooding by an alkali solution, before a black pattern was etched on the surface. The technique employed in the etching is unknown, but Beck's experiments would suggest that a copper nitrate solution was used. Although by far the easiest of the three, this technique does not appear to have been popular as only a small number of beads decorated in this way have been found (see p. 87)⁸.

In the third method (Type III), the natural red of the surface of the cornelian formed the background for the pattern in black. Of the only two examples of this type so far discovered, one comes from Taxila and has been dated to the first century A.D.⁹. However, the Taxila bead may well have been an antique as the other bead, from Harappa¹⁰, although the excavation report is ambiguous on this point, was apparently found together with the other etched beads from this site.

For footnotes see page 86.



Fig. 2 Distribution map of etched cornelian beads.

1 Lothal	6 Amri	11 Umm an-Nar	16 Ur
2 Kalibangan	7 Moghul-Ghundai	12 Shah Tepe	17 Nippur
3 Harappa	8 Tor-Dherai	13 Tepe Hissar	18 Kish
4 Mohenjo-Daro	9 Mundigak	14 Kalleh Nisar	19 Tell Asmar
5 Chanhudaro	10 Chiridamb	15 Susa	20 Assur
			21 Tell Brak

Mesopotamia

Etched cornelian beads of Type I have been found, although not in large numbers, at Ur¹¹ (in graves of the Royal Cemetery¹² and in some of the Akkadian graves)¹³; at Nippur (in an Ur III context)^{13a}; at Kish (in burials of Cemetery 'A')¹⁴; at Tell Asmar (in the Akkadian stratum)¹⁵; at Aššur (in a grave of level E, in the Ištar Temple¹⁶ and

⁷ Beck, *op. cit.* fn. 1, 384. In recent times this technique was still being employed in parts of Iran, on the borders of China and Tibet, and in Sind (Western Pakistan). In Sind, the juice of a plant was mixed with the alkali, presumably to keep it from flaking off the stone before it had been made fast by heat. Mackay, E. J. H., 'Decorated Carnelian Beads', *Man* XXXIII (1933), 143–146.

⁸ Beck's experiments have given the following results. A pattern drawn on the whitened surface of the bead, after reheating, with a solution of lead nitrate, has practically no effect. This is also the case with a solution of iron nitrate. On the other hand, cobalt, manganese and—especially—copper nitrate produce clear black lines. One may assume, therefore, that a copper nitrate solution was used to produce the patterns of the Type II beads. Mackay E. J. H. (*Chanhu-daro Excavations 1935–36*, Newhaven 1943, 200) remarks that manganese, unless very thickly applied, has a rather purple appearance. Pl. LXXIX, 12 has a definite purplish tinge and Mackay assumes that in this particular case a manganese solution was employed. Agate can also be stained by being soaked in honey and then heated; deep black lines then appear. A similar result is achieved through the action of sulphuric acid upon a sugar solution.

⁹ Etched cornelian beads have been manufactured up to the 20th century A.D. and the decoration and shape changed according to taste and fashion. Beck has distinguished two groups of a later date coming from India (Taxila and the megalithic tombs in southern India), Persian Balūchistān (found by villagers near Bampūr) and southern Russia (former Turkistan, Crimea), (Beck, *op. cit.* fn. 1, Pl. LXVII, figs. 3–5, Pls. LXVIII–LXXI B and C). Their dates range from the 4th century B.C.—10th century A.D. and they fall, therefore, outside the scope of this article. However, they demonstrate clearly the continuation of an ancient industry whose origin goes back to the third millennium B.C.

¹⁰ Mentioned by Mackay, *op. cit.* fn. 8, 200 as unpublished, unless it is one of the four beads published by Vats, M. S. *Excavations at Harappa*, Government of India Press Calcutta 1940, Pl. CXXXI, fig. 4 a–d.

¹¹ Woolley, C. L., *Ur Excavations; II The Royal Cemetery* (Oxford University Press, 1934) 373 ff., Pls. 133, 134, U.34 top row, 220, U.8931, U.9786; fig. 80; *Ur Excavations; IV The Early Periods* (Philadelphia, London, 1955), Pl. 28 bottom row, 177, 195, 199 and an unpublished example mentioned on p. 142 (U. 1895), Beck, *op. cit.* fn. 1, Pls. LXVI, figs. 4–5, LXVII, fig. 1. The dating of the Ur graves containing etched cornelian beads is based on Nissen's recent *Zur Datierung des Königsfriedhofes von Ur. Unter besonderer Berücksichtigung der Stratigraphie der Privatgräber* (Bonn 1966). In the few cases where the latter did not or could not reach a satisfactory dating we will follow Woolley's original interpretation, or in the case of the so-called 2nd Dynasty graves, Buchanan's redating in 'The Date of the so-called Second Dynasty Graves of the Royal Cemetery at Ur', *Journal of the American Oriental Society* 74 (1954), 147–153.

¹² PG/151, 248, 453, 580, 777, 1100, 1284.

¹³ PG/57, 133, 384, 1351 (late Akkadian—early Ur III), 1380 (either Lugalanda phase (ED IIIB) or early Akkadian), 1470, 1845 (late Akkadian—early Ur III), 1853.

^{13a} McCorn, D. E., Haines, R. C. and Hansen, D. P., *Nippur I, Temple of Enlil, Scribal Quarter, and Soundings* (Oriental Institute Publications, LXXVIII, University of Chicago Press, 1967), Pl. 150, nos. 9 (TBV or IV 2) and 10 (TBIV 2 burial 3 B 9).

¹⁴ Mackay, E. J. H., Report on the Excavations of the 'A' Cemetery at Kish, Mesopotamia, Part I, *Field Museum of Natural History, Anthropology Memoirs* Vol. I, 1 (Chicago, 1925), Pl. IV, B, 23; 'Sumerian Connections with Ancient India', *Journal of the Asiatic Society* (1925), 697–701, Pl. X 2–3; *A Sumerian Palace and the 'A' Cemetery at Kish, Mesopotamia*, Part II, *Field Museum of Natural History, Anthropology Memoirs* Vol. I, 2 (Chicago, 1929), Pls. XLIII, 6, 8, 9, LX, 54–58, 62–63, pp. 184–5; Beck, *op. cit.* fn. 1, Pl. LXVI, fig. 6.

¹⁵ Frankfort, H., 'Mesopotamia sheds light on ancient India', *Illustrated London News*, October 1, 1932, 502–505, fig. 7; 'The Indus Civilisation and the Near East', *Annual Bibliography of Indian Archaeology*, Leiden 1932, 1–12, Pl. 1, d, m; *Tell Asmar, Khafaje and Khorsabad*, *Oriental Institute Communications* 16 (Chicago 1933), 48–53, figs. 31–33; Beck, *op. cit.* fn. 1, Pl. LXVI, fig. 8.

¹⁶ Andrae, W., *Das Wiedererstandene Assur* (Leipzig, 1938), 80, Pl. 11.

at Tell Brak (?))¹⁷. Of these sites, Ur and Kish have produced not only the largest number of beads (some 20–30 specimens), but also the beads with the greatest variety in shape and design.

Cornelian beads were rare and therefore valuable. At both Ur and Kish, some 14 or 15 burials contained etched cornelian beads, but the necklaces in which they usually occurred rarely included more than one or two examples.

Ur has produced two examples of a type not found elsewhere in Mesopotamia. These beads are almost square with rectilinear lozenge patterns filled in with single circles (Fig. 1, 25). They are of interest owing to their rarity in Mesopotamia¹⁸ and their resemblance to a small class of beads from the Indus Civilisation, of which one from Mohenjo-daro is identical to the two from Ur (Fig. 1, 26, comes from Chanhudaro).

From Ur and Kish come two identical beads, roughly oval in shape and decorated with a compartmented pattern (Fig. 1, 30). They bear a close resemblance to a bead from Chandu-daro (Fig. 1, 31) and thus are indicative of yet another link between Sumer and the Indus Civilisation.

Of the other variously decorated beads of Type I from Ur, Nippur, Kish and Tell Asmar, the majority have patterns which may be compared with types found in the Indus Valley region at Mohenjo-daro, Harappa, Kalibangan, Chanhudaro and Lothal¹⁹.

Two beads of Type I from Ur (Fig. 1, 33–34) have been decorated in a technique not found elsewhere. They have been described as follows: 'They appear to have been lightly etched with a number of circles. The whitened portion has been almost entirely removed, whether accidentally or purposely is not evident. The result is a very shallow grey ring which is unlike the usual deep depression caused by the heavily etched portion flaking away'²⁰. It is possible that these beads represent a Sumerian attempt to imitate the highly valued and doubtless expensive imported etched beads.

Beads with a black pattern on a whitened surface (Type II, see p. 85) are rare and only three have been found in Mesopotamia; two at Ur (Fig. 1, 36–36) and one at Tell Asmar²¹. The two from Ur are attributed by Beck to the 'Early Period', which means that they belong to the group of etched beads under discussion. However, we lack exact information concerning their provenance. The Tell Asmar specimen which, according to Beck, is not later than the Larsa period, seems to be decorated with a guilloche design and is, therefore, the only example of a scroll pattern on a bead of this group.

¹⁷ Rao, S. R., 'Further Excavations at Lothal', *Lalit Kala* II (1962), 14–30, 23. I have been unable to locate the original reference.

¹⁸ An identical bead comes from a grave at Shah Tepe IIa—I (see p. 90).

¹⁹ At Ur, figure-of-eight circles occur most frequently (9 times), while at Kish, interlinked concentric circles and 'eye' motifs are most popular.

²⁰ Beck, *op. cit.* fn. 1, 309. It is not known whether these two beads were found in the Royal Cemetery or in Akkadian burials.

²¹ *Ibid.*, Pl. LXVI, fig. 8g.

The number of etched cornelian beads found in northern Mesopotamia at Aššur and Tell Brak (?) is so small when compared with the finds from southern sites, that we may assume that their rare occurrence in the north and their slightly later date (Ur III) are due to the unfavourable geographical position of these northern sites, far from the two main routes which served the bead trade (see below, p. 90).

These routes were those used by the traders in lapis lazuli. From the Badakhshan mines in east Afghanistan, the trade either went overland through northern Iran, modern Meshad, Nishapur and Teheran to Arpachiyah, or via Hamadan and Kermanshah to the Diyala region, or else it went by sea, from the Indus Delta having been brought to the coast there, thence up the Persian Gulf to the harbours of southern Mesopotamia.

In southern Mesopotamia, etched cornelian beads have been found in levels which date from the ED IIIA period to Late Akkadian–Ur III²². This type of bead first occurs at Ur in the Royal Cemetery of the ED IIIA phase. It is then found in cemetery 'A' at Kish where, however, it does not appear to have been imported after ED IIIB. In Akkadian levels, it makes its first appearance at Tell Asmar²³, a city which has supplied evidence of foreign contact during this period. It is also found in Sargonic graves at Ur. One 'eye' cornelian and one bead with white bands have been reported from Nippur levels TB V/IV 1, 2 which fall within the Ur III period.

The evidence suggests that the etched cornelian beads which reached Ur and Kish during ED IIIA–B, were brought to Mesopotamia by means of the southern sea-route through the Persian Gulf and not along the overland routes. Had the latter been used, some specimens at least of these highly valued beads—which may have had some kind of talismanic or symbolic virtue—would have been found on the route along which the lapis lazuli was distributed southwards after reaching the Diyala region. This theory is supported by the fact that the etched cornelian beads from Tell Asmar, situated in the Diyala region, were discovered in an Akkadian context²⁴; for objects of definite Indian origin—such as kidney-shaped inlays made of bone, a square alabaster stamp seal with concentric squares on the face and a bead pattern between the outermost squares, and a 'glazed' steatite cylinder seal depicting Indian fauna²⁵—strongly suggest by their absence elsewhere in Mesopotamia that Tell Asmar was directly connected in the Akkadian period with the Indus Civilisation via the Persian Gulf. It seems feasible to suggest that the etched cornelian beads followed the same route.

Iran

The number of etched cornelian beads discovered in Iran is negligible. Nevertheless, their distribution (Tepe Hissar, Shah Tepe and Kalleh Nisar)²⁶ emphasizes the existence of the east-west trade along the northern side of the Central Iranian Salt Desert, the Dasht-e-Lut and then via Hamadan and Kermanshah to the Diyala region, while the occurrence of etched cornelian beads at Susa indicates either ease of access from southern Mesopotamia into Khuzistan, following the stretch of

lowland west of the Kabir Kuh mountain range or direct trade between Lothal and Susa as proposed by Rao²⁷ on the basis of finds at the two sites. This contact may have been carried on either along the Gulf route used by Mesopotamia, and most likely as an extension of the Mesopotamian sea trade, Susa being at that time in a favourable position near the navigable head of the Gulf, or by means of a land route through Fārs and the Bampūr region of Persian Balūchistān. This overland route linked up with the southernmost of those which connected Pakistani Balūchistān and the Indus Valley plains.

A necklace with five etched cornelians was discovered in one of the graves of

²² Porada, E., 'The relative chronology of Mesopotamia. Part I. Seals and Trade (6000–1600 B.C.)', in Ehrich, R. W., *Chronologies in Old World Archaeology* (Chicago University Press, 1965) 164, 168.

²³ Ranging from early Akkadian to late Akkadian (Strata IVb–IVa).

²⁴ Beck, *op. cit.* fn. 1, 389 mentions that one bead (Pl. LXVI, fig. 8–A) was found in rubbish outside a palace of Ur III date, and should almost certainly be dated to the Akkadian period. Pl. LXVI, fig. 8–C was a surface find and therefore undatable.

²⁵ Frankfort, H., *Tell Asmar, Khafaje and Khorsabad* (University of Chicago Press, 1933) fig. 32, 51. Although a like procession of animals, with a fish-eating crocodile placed similarly above, appears on a seal impression from Mohenjo-daro (Marshall, J., *Mohenjo-daro and the Indus Civilization*, 3 vols. (London 1931) Pl. CXVI, 14, which kind of impression could be derived from cylinders according to Frankfort, I hesitate to regard this seal as actually manufactured in the Indus Valley. The deep grooves at each end are non-Babylonian as much as non-Harappan and although the animals depicted belong to the Indian, not Mesopotamian fauna, the flat and angular style in which the animals have been rendered has but little in common with the otherwise skilful way of carving of the Indian seal-cutter. Although certain details in the execution of the animals are comparable to representations on the square Indus stamp seals, this cylinder seal is, in shape as well as in style of carving, of an inferior quality and the device gives the impression of having been copied gratuitously, void of the artistic feeling and skill of the Indus seal cutter.

It seems equally unlikely that this cylinder seal originated in Mesopotamia because of its unusual shape and the fact that, even if the device had been copied, the Sumerian artist undoubtedly would have produced a better piece of work. It may, therefore, perhaps be justified to suggest that this seal was carved neither in Mesopotamia nor in the Indus Valley, but in an intermediate centre of seal production, such as Elam, where this device of a procession of Indian animals or the actual model which has served as a copy, could easily have reached the seal industry via the Susa-Indian contacts.

²⁶ While in the same general area as Tepe Hissar, Shah Tepe is north of the mountains.

²⁷ Rao, S. R., 'A "Persian Gulf" Seal from Lothal', *Antiquity* XXXVII (1963), 96–99: 'Since several Indus objects such as etched carnelian beads and shell and terracotta gaming-pieces are found at Susa, whilst Susan objects such as a bronze amulet with couchant bull and painted pottery with Susan motifs are found at Lothal, it is likely enough that Lothal imported also bun-ingots of copper from Susa.'

I feel rather hesitant about Rao's suggestion that the similarity of bun-shaped ingots of copper from Lothal, Mohenjo-daro and Susa would tend to point to an import trade of copper from Susa to the Indus Valley. I see little purpose in Susa exporting copper down the Gulf which first had to be imported into the low plain of Susiana from elsewhere, probably the rich copper areas of northern Azarbayjan (the regions of Mianeh and Zanjan), north-west of the Elbruz mountains (?) and likely often under difficulties because of hostile mountain tribes like the Lulubians and the Gutians. Therefore, export of copper from the Indus Valley to Susa seems to have been more likely. Copper, although relatively rare, is available in the regions near to the Indus Valley, while rich copper deposits occur in Balūchistān, at Shah Bellaul and at Robat (Marshall, *op. cit.* fn. 25, 481 ff; Piggott, S., *Prehistoric India* (Pelican 1950), 186–197; Lamberg-Karlovsky, C. C., 'Archaeology and Metallurgical Technology in Prehistoric Afghanistan, India and Pakistan', *American Anthropologist* 69 (1967), 149). Rao doubts whether the copper mines from Khētri, Delwara and Devbari in Rajasthan were worked in the third millennium B.C. and therefore proposes an import of Susan copper into the Indus Civilization. I doubt in turn whether there is for that matter any evidence for workable mines in the third millennium B.C. whence Susa obtained its supplies.

Tepe Hissar IIIc²⁸. Four are of the 'eye' variety while the fifth, which was used as a pendant, has a unique pentagonal shape with an equally unique design, consisting of two broadly etched bands forming an inverted V with a blunt apex.

The neighbouring site of Shah Tepe²⁹ has yielded, in a (Shah Tepe) IIa-I grave, a cornelian with a rectilinear lozenge pattern filled in with single circles. This is identical to the examples from Ur and Mohenjo-daro (Fig. 1, 25).

The graves of Hissar IIIc and Shah Tepe IIa³⁰ in which these beads have been found, may be dated to a period which ranges from the very end of the IIIrd millennium to c. 1800 B.C. or later. This does not agree with the far earlier appearance of etched cornelians in Mesopotamia, nor with the pre-Sargonid dating of the two beads from Ur which have decoration identical to that of the cornelian of Shah Tepe IIa-I (Fig. 1, 25).

However, as we have postulated, etched cornelian beads reached lower Mesopotamia via the direct sea route through the Persian Gulf, while their rare and later occurrence in the north is clearly the result of lack of direct contact with the main east-west sea and land arteries.

The rare occurrence of etched cornelian beads throughout Iran—and particularly northern Iran—despite the fact that Tepe Hissar was connected with the overland lapis lazuli route³¹, indicates that these cornelians, for an unknown reason, were only very occasionally traded along that way. Perhaps it is even feasible to assume that these beads point to a direct contact with the Indus Valley, or that they were sold by a merchant engaged in the lapis trade and were treasured for their talismanic or symbolic value. They may, therefore, be considerably earlier in date than the graves in which they were found.

The overland route through the north along which etched cornelians were apparently occasionally traded is likely to have passed the Zhōb and Lōralai Districts, since one barrel-shaped cornelian of Type I (p. 85) with a rectilinear lozenge pattern filled in with single circles was found at Moghul-ghuṇḍai situated on the left bank of the Zhōb river, c. 15 km. south-west of Fort Sandeman in Northern Pakistani Balūchistān³². Although it is without stratigraphical context, it may be assumed that this bead belongs to some phase of the Zhōb culture and can therefore be dated within the period of Harappan contacts with the west.

²⁸ Schmidt, E. F., *Excavations at Tepe Hissar, Damghan 1931-33* (University of Pennsylvania, 1937), Pl. XXXV, LXVI (H.3215, H.3216).

²⁹ Arne, A. J., *Excavations at Shah Tepe, Iran* (Stockholm, 1945), Pls. LXXVI, fig. 615, XCII, fig. 612 a-d, no. 600, B. II S7.

³⁰ Dyson, R. H., 'Problems in the Relative Chronology of Iran, 6000-2000 B.C.', in Ehrich, R. W., *Chronologies in Old World Archaeology* (Chicago University Press, 1965), 241-242.

³¹ Tepe Hissar's connection with the lapis lazuli route is demonstrated by the fact that one of the new materials for beads in Hissar II-a is lapis lazuli which retains its popularity up to the end of Hissar III. Hissar II-a has been correlated with the later Jamdat Nasr and Early Dynastic I periods (Dyson, *op. cit.* fn. 30, 239-240).

³² Stein, M. A., *An Archaeological Tour in Waziristan and Northern Baluchistan* (Memoirs of the Archaeological Survey of India No. 37, 1929), 47, Pl. XII, M.NW.2.

Two other cornelian beads, one round with an 'eye' pattern, the other barrel-shaped with an indistinct pattern of lines and circles, from Tör-Ḍhērai³³, situated c. 3 km. north of Ḍabar-Koṭ in the Lōralai District which stretches east of Quetta, are of a less clearly recognisable horizon. In fact, the barrel-shaped cornelian comes from a cairn which may be of early historical date. As such it belongs to Beck's Middle group and has no direct bearing upon the distribution of the early group of cornelians under discussion.

In southern Afghanistan at Mundigak, which is situated north-west of Kandahar, in the valley of Kishk-i-Nakhod Rud, three oblong cornelian beads were discovered³⁴. The description of 'dessins en "8" incrustés blanc' suggests that we are here dealing with etched beads of Type I, decorated with figure-of-eight circles. However, their location in level IV-3 (of which Casal remarks that their position near the surface may suggest a date later than that of the level in which they were found) and in levels VII-1 and VII-2 (which are dated well into the second millennium B.C.), as well as their appearance (see *Mundigak*, Fig. 138, 23) causes us to doubt that these beads are of the early type. It would probably be best to treat them as local imitations belonging to a not clearly defined but definitely later date than the Sumerian and Indian proto-types³⁵.

Round, etched cornelian beads with concentric 'eye' motifs also occur at Kalleh Nisar, in an Akkadian stone cist grave^{35a} and at Susa, in a sarcophagus of the bath-tub type, and also dated to the Akkadian period³⁶. Moreover, Khan³⁷ refers also to etched cornelian beads of Type I from Susa D, which he describes as identical to Type I beads from the Indus Valley and Mesopotamian sites. As we have seen, it is most probably due to Sumer's proximity and to the ease of communication between the two, both by land and by water, that these 'eye' beads have reached Susa.

No etched cornelian beads of the type here discussed are to be found in any other

³³ Stein, *ibid.*, 70, Pl. XVI, T.D.c.1, T.D.iii.1.

³⁴ Casal, J.-M., *Fouilles de Mundigak* (Mémoires de la Délégation archéologique française en Afghanistan XVII, 2 vols. Paris, 1961), 242, fig. 138, No. 23.

³⁵ Beads and pendants of lapis lazuli found at Mundigak in Levels I-IV have been tentatively dated by the excavator to the Uruk, Jamdat Nasr and ED I-III periods, but these dates await verification, following the testing of new C14 samples. This use of lapis lazuli suggests that the lapis lazuli trade route, from the Badakhshan mines, passed through Mundigak, but only 13-20 lapis lazuli beads have been reported.

^{35a} Vanden Berghe, L., 'La Nécropole de Kalleh Nisar', *Archeologia* 32, 1970, 73.

³⁶ Mecquenem, R. de, 'Fouilles de Suse, 1933-39', *Mémoires de la Mission Archéologique en Iran XXIX* (1943), 3-161, fig. 84, No. 7.

³⁷ Khan, F. A., *An Archaeological Study of the Indus Valley Civilizations and their Relationship to the Early Cultures of Iran*, Ph.D. thesis, University of London 1954, 34g. These beads are apparently in the reserve collections of the Musée du Louvre, Paris.

part of southern Iran or Persian Balūchistān³⁸. This leads to the assumption that, apart from a sporadic trade in the north, the trade in these beads did not follow the arduous route overland from Balūchistān, through Fārs, north-west along the Zagros mountains to the coastal strip, around Ahwaz and so into Mesopotamia. Nor does a maritime route along the inhospitable Persian side of the Gulf seem to have been feasible. Apparently, the beads were traded through the Gulf only, following a route close to the Arabian coast. In support of this theory, an etched-zone bead has been found on Umm-an-Nār, an island off the coast of Trucial Oman³⁹. This will have some bearing on the tracing of the actual route followed in the maritime trade between the Indus Civilisation and Sumer.

The Indus Valley

Etched cornelian beads of all three types occur in the Indus Valley region. As in Mesopotamia, beads of Type I are by far the most common; the most striking find being at Lothal where more etched cornelian beads are said to have been found than at any other site in the Indus Valley⁴⁰. Six beads were found at Mohenjo-daro⁴¹, three at Harappa⁴² and seventeen at Chanhudaro⁴³. Etched cornelian beads, e.g. figures-of-eight and guilloches of three interlocking circles, have also been reported from Kalibangan, situated near the Sutlej river south-west of Harappa. Unfortunately their exact stratigraphical location (pre-Harappan or Harappan) has not been stated^{43a}.

³⁸ Tepe Yahyā, a site located approximately 200 km. directly south of Kerman, in the fertile Soghun valley, has yielded two cornelian beads in the course of the second season, 1969. One, unfortunately a surface find at the top of the mound, is a broken tubular bead, pale red in colour with a geometric pattern of a central vertical line with on either side the beginning of a pointed design cut into the surface and subsequently filled in with a white pigment. Measurements: length c. 12 mm., diameter cross-section 5 mm., centre hole—drilled on long axis c. 1.5 mm. The other one is a small tubular bead, shaped like a cylinder and tapered at both ends. It is very pale red, almost reddish brown in colour and bears an overall pattern of tiny pale white solid circles which have been etched on the surface. Measurements: length approx. 11 mm., diameter cross-section c. 4–5 mm. Hole drilled on long axis. The archaeological context of this bead is uncertain since it was discovered in a late fill from site E which has no certain date, although a date later than the third millennium B.C. seems beyond doubt. This bead may, therefore, belong to Beck's middle group although neither shape nor pattern shows a striking similarity to any of Beck's illustrations. I am greatly indebted to Professor Dr. C. C. Lamberg-Karlovsky for allowing me to incorporate this piece of information.

³⁹ Thorvildsen, K., 'Burial Cairns on Umm an-Nar', *Kuml.* (1962), 208–219.

⁴⁰ Rao, *op. cit.* fn. 17, 14 ff, fig. 27, No. 5.

⁴¹ Marshall, *op. cit.* fn. 25, Pl. CXLVI, 43a45; Mackay, E. J. H., *Further Excavations at Mohenjo-daro*, 2 vols. (Delhi, 1938), Pl. CXXXV, 3; Beck, H. C., *op. cit.* fn. 1, Pl. LXVII, fig. 2.

⁴² Vats, M. S., *Excavations at Harappa* (Calcutta, 1940), Pl. CXXXI, fig. 4 aad.

⁴³ Mackay, *op. cit.* fn. 8, Pl. LXXIX, 1–16; Majumdar, N. G., *Explorations in Sind* (Memoirs of the Archaeological Survey of India 48, 1934), Pl. XVII, 25.

^{43a} *Indian Archaeology. A Review 1960–1961*, 31–32, Pl. XLIXB.

Beads found at Indus Valley sites⁴⁴ and decorated with various 'eye' and 'spectacle' motifs, figure-of-eight circles and rectilinear lozenge patterns filled in with single or concentric circles, all bear a close resemblance to and, in some cases, are even identical to, similarly decorated beads found at the Mesopotamian sites (see above). Even the unique compartmented beads from Ur and Kish may be closely compared with one from Chanhudaro (Fig. 1, 30–31).

The patterns most popular at the majority of the Indus sites are 'eye', 'spectacle' and interlinked concentric circle formations, but at Chanhudaro these are second in popularity, preference being given to figure-of-eight circles. A religious, symbolic—perhaps astral—significance may be assumed for the figure-of-eight motif which occurs twice amidst the trefoils on the robe of the so-called priest from Mohenjodaro⁴⁵.

Only five beads of Type II have come from the Indus Valley region. Four were found at Chanhudaro and their identical pattern shows that they were contemporary with beads of Type I. One other unpublished bead comes from Mohenjodaro.

The two beads of Type III with black lines on red background, which come from Taxila and Harappa, were discussed on page 85.

In Sumer, the majority of the etched cornelians come from graves and in spite of the possibility of a bead industry at Ur employing lapis lazuli and probably other materials⁴⁶, there is no evidence that etched cornelian beads were manufactured on the spot. One can only conjecture that the unique etched circle patterns on two beads of Type I from Ur are of local workmanship, since both pattern and mode of execution are unmatched elsewhere. This may also be the case with the two beads of Type II from the same site (see above, p. 87).

At the Indus Valley sites, a totally different situation exists. Here, at Chanhudaro and Lothal, several artisans' workshops and bead factories have supplied evidence of bead production on a large scale. Various materials were used, of which agate and cornelian were the most popular, but of these, cornelian was decidedly the more rare⁴⁷. This has led Wheeler to postulate an export trade in beads from the Indus⁴⁸.

At Chanhudaro, where most of the inhabitants seem to have been engaged as artisans, several small bead workshops and bead factories were found in level Ib (i.e. at a time when the Indus Civilisation was at its height). Chert drills, bronze

⁴⁴ The second bead from Mohenjodaro with rectilinear lozenge patterns filled with concentric circles instead of simple circles as on the two beads from Ur, is closely related to one from Chanhudaro which is, however, a Type II bead.

⁴⁵ In the 20th century this motif is still in use on the walls of houses in Bengal and Madras where it is said to be a protection against the evil eye. For this reason it is sometimes used as a brand for cattle. (Mackay, E. J. H., *op. cit.* fn. 8, 201.)

⁴⁶ A stone drill for boring beads similar to the many found at Chanhudaro, was discovered at Ur (Mackay, E. J. H., *op. cit.* fn. 8, 212).

⁴⁷ Next come faience and vitreous paste, followed by steatite and pottery. Lapis lazuli is definitely of rare occurrence, although two unfinished lapis beads prove that this stone was actually worked at Chanhudaro thus pointing to local manufacture.

⁴⁸ Wheeler, R. E. M., *The Indus Civilization* (Cambridge University Press 1960), 80.

tubular drills and other tools were found, while finished and unfinished beads of various materials lay scattered around. Among the beads were cornelian and agate nodules, which in several cases showed signs of having been subjected to heat (see below).

Etched cornelians were found, many of them unfinished, broken during boring, or rejected on account of poor colour or for other reasons. The unfinished and broken specimens—the majority of Type I but some of the less common Type II⁴⁹—clearly prove that etched cornelians were actually made at Chanhudaro and not imported.

Several beads had evidently been discarded since they showed signs of having broken while being bored; a process which was invariably performed only after the surface was completely finished and etched.

This method of manufacturing continued into later times as demonstrated by the discovery of partly-made etched cornelian beads at Sabaur in the Bihar district⁵⁰. There, the beads have been painted and fired but not perforated, confirming that the bead was not perforated until it was complete in all other respects.

Another centre for bead-making was Lothal⁵¹, where a factory was established in Phases II and III. Stone beads, chiefly agates and cornelians, were worked on a large scale and hundreds, including etched cornelians, have been found.

Referring to the etched cornelians, Rao has remarked that they 'are more numerous at Lothal than at any other site. As such Lothal may be considered as the original centre where etching was developed'⁵².

At Lothal, by far the most popular patterns are figure-of-eight circles and concentric circles etched on both sides of the beads. As the late levels of Lothal III 'A' have been dated by C₁₄ to 2023 B.C. \pm 115⁵³, the dates of phases II and III probably equate with the Akkadian and Ur III periods, with a tentative preliminary date prior to c. 2350 B.C. which coincides with the final phase of the Early Dynastic period⁵⁴.

No bead industry seems to have flourished at Harappa and Mohenjodaro and the few etched cornelian beads encountered⁵⁵ are likely to have come from such bead-making centres as Chanhudaro and Lothal. A slightly later date (i.e. in the

⁴⁹ Of the Type II beads found, one was decorated with figure-of-eight circles, the other with a rectilinear lozenge pattern filled in with concentric circles. The latter may be compared with an example from Mohenjodaro.

⁵⁰ According to Beck, *op. cit.* fn. 1, 386, they may be dated to the beginning of the Christian era.

⁵¹ Rao, S. R., *op. cit.* fn. 17, 14 ff.

⁵² *Ibid.*, 23.

⁵³ Rao, S. R., *op. cit.* fn. 27, 97; Dales, G. F., 'A suggested chronology for Afghanistan, Baluchistan and the Indus Valley', in Ehrich, R. W., *Chronologies in Old World Archaeology* (Chicago University Press, 1965), 277, end of Phase III B, 2010 \pm 115.

⁵⁴ During Caspers, E. C. L., *Archaeological evidence for maritime trade in the Persian Gulf in the Third Millennium B.C.*, Ph.D. thesis, University of London, 1969. Chapter VIII deals with the trade of carved stone vases as far eastwards as Mohenjodaro (lowest levels) during Early Dynastic times.

⁵⁵ Three 'eye' beads of Type I and one Type III bead with a 'spectacle' pattern from Harappa (see above pp. 93). One 'eye' bead, two beads with inter-linked circle formations and two with rectilinear lozenge patterns and single and concentric circles, from Mohenjodaro.

Late Period: and Ur III through Isin-Larsa periods) based on their find spot near the surface is in accordance with a presumed distribution centre more towards the south⁵⁶.

The other archaeological material with which the etched cornelian beads were discovered, together with the available C₁₄ dates, would place the *floruit* of the bead industry within a period ranging from ED III to the Third Dynasty of Ur with its climax in the Akkadian period.

The provenance of the etched cornelian beads

The evidence so far cited points to the workshops of Lothal and Chanhu-daro as the centres of manufacture for the etched cornelian beads which have been found outside the Indus Valley, in Mesopotamia, Iran and Trucial Oman. From Lothal and Chanhu-daro, the beads, together with a variety of other merchandise, were traded up the Persian Gulf. The route followed the Arabian coast of the Gulf, past the island of Umm an-Nār off the coast of Trucial Oman, and so to lower Mesopotamia. Only very occasionally were etched cornelian beads transported via the lapis lazuli route through northern Iran (see pp. 88).

With the Indus area established as the most likely provenance for the etched cornelian beads, it now remains to trace the sources of agate and cornelian which were available to the bead makers of the Indus Civilisation and, if possible, to show that these sources were worked by the peoples of the Indus region.

Sources of agate and cornelian

Cornelian, or red chalcedony, is one of the chief varieties of agate⁵⁷. It occurs in the same way as ordinary chalcedony and agate and is often associated with these more common types. In India, several sources are known.

Agate and cornelian are of common occurrence in the beds of the rivers Krishnā, Godāvāri (e.g. near Rājamahendri) and Bhīma which drain the Deccan plateau, and in the Rājmahāl traps. Agate pebbles are collected in the Narmadā valley—especially at Bherāghat—in the Deccan Trap. They are also found in great numbers in the

⁵⁶ An etched cornelian bead with a guilloche of three interlocking circles (Type I) was found in a IIID level at Amri, a site situated west of Chanhu-daro. Amri IIID equates with Late Harappan and can therefore be dated c. 2000–1800 B.C. (Casal, J.-M., *Fouilles d'Amri* (Publications de la Commission des Fouilles Archéologiques, Paris, 1964), 155, fig. 122, No. 16). Stein, M. A., *An Archaeological Tour in Gedrosia* (Memoirs of the Archaeological Survey of India 43, 1931), 44 mentions the presence of stone beads with white inlay at Chirī-damb, not far from the Rakhshān river, west-south-west of Panjgūr in Pakistani Makrān. Further information is lacking.

⁵⁷ Dana, J. D. and E. S., *The System of Mineralogy* III (New York 1962, 207). The chief varieties of agate are:

- (a) chalcedony with colours in parallel bars
- (b) cornelian or red chalcedony
- (c) mokha stones (Mocha in Yemen at the entrance to the Red Sea is an important origin for moss agate)
- (d) moss agate
- (e) blood stone
- (f) plasma, a grass green stone
- (g) chrysoprase, an apple-green stone (see Arkell, A. J., 'Cambay and the Bead Trade', *Antiquity* X (1936), 296.

Rājmahāl hills. Agates and cornelians occur to the north of the Pangong Lake in the Rudok district of Kasmīr. Veined agate, greatly valued, occurs at Rānpur in Ahmadābād and moss agate comes from, amongst other places, the district of Kāthiāwar.

The chief source of supply for the cornelian and agate workers of Cambay is the Rātānpura mines of the State of Rājpipla in the Narmāda valley, and Sir E. Pascoe states that, according to some, the still flourishing industry of the Rātānpura mines has existed for over 2,000 years.⁵⁸

All the sources given above are within a reasonable distance of the cities of the Indus Civilisation, but Kāthiāwar and Rājpipla are the closest and therefore the two most likely to have been exploited. We therefore agree with Rao⁵⁹, that Lothal, the harbour town of the Indus Civilisation and one of the two main centres of bead-making, obtained its raw materials from the Rātānpur mines of Rājpipla. Here, the Harappan post at Bhagatrāv, situated on the Kim river, was probably the control base for the mining and export of these precious stones. Rao also suggests that Lothal exchanged cornelian for the chert which is present in the Indus Valley, but which is not found in the neighbourhood of Lothal.

The geology of Iran has not yet been fully explored and it is not known if deposits of agate, chalcedony and cornelian exist⁶⁰. Relatively small quantities of agate have been found in Armenia, Georgia and other regions of the U.S.S.R. and in Azerbaijan.

In the 'Vocabulary of Stones'⁶¹, a Sumerian lexical text, the statement, 'na₄.gug (*santum*=cornelian) .mar.ḫal.lum, na₄.gug.meluḫ.ḫa, na₄.gug.mar.ḫa.ṣi, na₄.gug.gu.ti.um^{ki}' may indicate that Meluḫḫa, probably to be equated with the Indus Civilisation, was not the only place from which cornelian was imported into Mesopotamia.

The order in which these sources of cornelian are named with Gutium (ki), probably the closest to Sumer⁶², at the end and Marḫaši (near to Elam)⁶³ second to last, suggests that all four regions were thought to lie behind or next to one another. Meluḫḫa and Marḫallum should then be placed on the Persian side of the Gulf; Marḫallum should be located beyond Meluḫḫa and the latter east of Marḫasi.

For Meluḫḫa we must almost certainly look to the Harappan Civilisation, which stretched as far south as Lothal⁶⁴. Bhagatrāv, one of the Harappan posts in Cambay, is thought to have been the main producer and distributor of the agate and cornelian

⁵⁸ Marshall, *op. cit.* fn. 25, II, 681.

⁵⁹ Rao, *op. cit.* fn. 17, 14 ff.

⁶⁰ The Geological Survey of Iran has kindly informed me that agate and cornelian deposits are found in various places in Iran; however, more specific details were not given.

⁶¹ Leemans, W. F., *Foreign Trade in the Old Babylonian Period* (Studia et documenta ad iura orientis antiqui pertinentia VI, Leiden, 1960), 10.

⁶² The Gutu were a mountain tribe inhabiting the areas north of Elam.

⁶³ Leemans locates Marḫaši near to Elam. This is in accord with Gadd who would place Marḫaši in west or south-west Elam.

⁶⁴ During Caspers, *op. cit.* fn. 54, chapters III, IX.

from the Rātānpura mines. From Lothal port, agate and cornelian beads, either etched or undecorated⁶⁵, and probably also agate and cornelian nodules, were shipped down the Persian Gulf to Sumer.

The position of Marḥallum in the list from 'The Vocabulary of Stones' suggests that it should be located beyond Meluḥḥa. It is possible that it was in fact in the region of one of the sources for agate and cornelian given above. Could the Sumerians possibly have been aware of the fact that the cornelian did not come from the Indus Valley proper but from sources further east? Thus, it could have been one of the more inland regions of the Deccan Trap (see p. 95), or possibly also, Kashmīr. Both of these places are fairly close to the Indus Valley region and within reasonable distance of the coast of Arabia.

Evidence for Indian trade in decorated cornelian and agate beads, from the Third millennium B.C. to the 20th century A.D.

The textual evidence for trade in the Persian Gulf clearly supports the theory that Meluḥḥa (almost certainly to be equated with the Indus Civilisation) was the main producer of the unworked cornelian and agate nodules which, together with manufactured beads, were traded down the Persian Gulf to Sumer (see above)⁶⁶.

In cuneiform texts of the early Larsa period, there are occasional references to na₄.bir.gug and na₄.gug.gid.da. Na₄.bir.gug is usually translated 'kidney-shaped cornelian beads', but these are more likely to be pieces of kidney-shaped inlay like the ones of bone which were discovered in the Akkadian stratum at Tell Asmar (see p. 86). Na₄.gug.gid.da is usually translated 'oblong pieces of cornelian'⁶⁷.

The fact that these objects were few in number and that the na₄.gug.gid.da formed part of the tithes given to the temple of Nin-gal at Ur after a prosperous journey to Dilmun⁶⁸, indicates that here we are dealing with objects of great value. Thus it is likely that the oblong pieces of cornelian referred to in the texts were beads which were at least partially worked if not completely finished.

An oblong shape for beads is not unusual, but the discovery of such oblong cornelian beads (some between 5 and 6 centimetres long) both in Sumer (at Ur and Kish) and in the cities of the Indus Valley, may imply that the Larsa texts are referring to this type of bead and that it was also imported into Sumer from the Indus Valley via the Persian Gulf⁶⁹.

Later writing attest the continuation of the trade in agate and cornelian. The *Periplus* of the Erythraean Sea (1st century A.D.)⁷⁰ mentions that agate and cornelian (ὀνυχίνη λίθια καὶ μοκρεῖνη) were exported from Barygaza (modern Broach)⁷¹ which is situated on the east side of the Gulf of Cambay, on the west coast of India. In the 16th century, the same commodities were shipped from Cambay to Africa, according to the much later account in *The Book of Duarte Barbosa*⁷². Barbosa was a Portuguese merchant who described the countries bordering the Arabian Sea. This trade was still flourishing in the early nineteen-thirties⁷³.

I am grateful to Mr. R. N. L. B. Hubbard for drawing the figures.

For footnotes see page 98.

- ⁶⁵ A number of unworked cornelian and lapis lazuli stones, an unfinished lapis lazuli bead, stone implements and remains of copper which were found in a later Akkadian grave at Ur (PG/958), are clearly the work-kit of a local bead-maker and suggest that imported, undecorated cornelian was worked locally at Ur.
- ⁶⁶ The cuneiform texts repeatedly mention three areas which supplied commodities to the alluvial plain of Mesopotamia by way of the Persian Gulf. Those places were named as Dilmun, Magan and Meluhha, and were always mentioned in this order. It is reasonable to suppose that this order was connected with the geographical locations of the three areas, Dilmun being the closest to and Meluhha the furthest from Sumer.
- Textual evidence from Lagash points to trade with Dilmun to obtain wood and copper and with Magan for wood in the pre-Akkadian period, at the time of Ur-Nanshe, c. 2550 B.C., i.e. ED IIIA, and Lugaland and Urukagina, c. 2400 B.C., i.e. ED IIIB. The Meluhha trade (copper, various kinds of wood and wooden objects, ivory and ivory objects, cornelian, lapis lazuli and gold) was first mentioned by Sargon of Akkad (2370 B.C.) who boasted that boats from Dilmun, Magan and Meluhha came to the quay of Akkad. This town was probably situated in the region of Kish or Babylon. Sargon's statement and other texts, taken with archaeological and geological evidence, suggest that during the third millennium B.C. the areas south of Ur composed a typical delta area with stretches of water, connecting the Sumerian cities of Ur, Eridu and Lagash directly with the Persian Gulf. The area of water was sufficiently great for the Sumerians both to regard it as a part of the sea and to operate sea-going merchant vessels on it. (During Caspers, *op. cit.* fn. 54, chapter I; see also 'New Archaeological evidence for Maritime Trade in the Persian Gulf during the Late Protoliterate Period' *East and West* Vol. XX, 3-4, 1970.
- Magan, as a producer of copper, had direct trade contacts with Mesopotamia via the Persian Gulf during the Third Dynasty of Ur, and Magan copper continued to be imported until the end of Larsa times. It can be inferred from the texts that copper from Meluhha was also traded down the Gulf until the end of Ur III or the subsequent Larsa period, although apparently via an intermediary, since there is no evidence for direct trade carried on beyond Magan in Ur III times. Dilmun, however, although it is only rarely mentioned in the Ur III texts appears to have become the main entrepôt exporting copper into Mesopotamia during the Larsa period.
- The archaeological finds from Bahrain, Failaka and the adjacent coastal areas support the equation of the region with the transit station Dilmun. This is further substantiated by the geographical location, topography and geology of Bahrain and references in Sumerian myths to certain corresponding climatic conditions and in other cuneiform records to the fact that Dilmun was an island lying at a certain distance from the head of the Gulf at that time.
- A number of cuneiform texts also refer to the import of goods from Meluhha by the sea route, and tell us what these goods were. We thus know that Meluhha must have been a seafaring nation, and that it was located beyond Bahrain because of the order in which it is mentioned in relation to the latter. These facts can be combined with the archaeological evidence for contact between Sumer and the Harappa Civilization in the latter part of the third millennium B.C., and the evidence for ship-building by the Indus cities in the form of representations of water-craft (During Caspers, *op. cit.* fn. 54, chapter I. The conclusion is that, with little doubt, Meluhha is synonymous with north western India. To quote Leemans (*op. cit.* fn. 61, 164) 'It would seem strange that the name of the country of the Indus Civilization should not have been known in southern Mesopotamia, although as archaeological evidence has shown, relations must have been rather frequent in the Akkad and Ur III periods. No name other than Meluhha comes under consideration.'
- ⁶⁷ Leemans, *op. cit.* fn. 61, 29.
- ⁶⁸ *Ibid.*, 29. Among the gifts to the temple of Ningal at Ur are also silver models of sea-going boats (mä. gur_a), commemorating a successful journey to Dilmun.
- ⁶⁹ Mackay, *op. cit.* fn. 1., 461 remarks on the similarity of a rectangular agate bead from the upper levels of Mohenjo-daro and one from Queen Pu-a-bi's grave at Ur.
- ⁷⁰ *The Periplus of the Erythraean Sea* (Translation and annotations by W. H. Schoff New York, 1912), 42, 193 = §48.
- ⁷¹ Near the Harappan outposts Megham and Telod.
- ⁷² Arkell, *op. cit.* fn. 57, 299 ff.
- ⁷³ *Ibid.*

The Scythian Age in the U.S.S.R.*

by T. SULIMIRSKI

The present, fourth report on recent archaeological literature of the U.S.S.R.¹ is devoted to the Scythian Age in the country west of the Don and the Volga, and the Caucasus, of the period from about 600 to 200 B.C. The volume of the actual archaeological literature of this period concerned with the whole country being too large to be dealt with in this issue, the literature dealing with the regions east of the Volga, on the Kama, the Urals and the whole of the Asiatic part of the U.S.S.R., and also the literature relating to the North Pontic Greek colonies, has been deferred to the next issue (*Bulletin 11*). Here I have dealt with the relevant literature published approximately between 1958 and 1970. As previously, only books, pamphlets and periodicals accessible in the main archaeological libraries in London were considered; they have been handled in about the same way as formerly.

*In this article the following are the chief abbreviations used:

- AAASH: *Acta Archaeologica Academiae Scientiarum Hungaricae*, Budapest.
AF: *Issledovaniya po Arkheologii SSSR* (Artamonov Festschrift), Leningrad 1961.
AIU: *Arkheologicheskie Issledovaniya na Ukraine 1965-1963*, Kiev 1964.
AK: *Arkheologiya*, Kiev (in Ukrainian, mostly with a short summary in Russian).
AO: *Arkheologicheskie Otkritiya*, Moscow.
AP: *Arkheologichni Pam'yatniki URSS*, Kiev (in Ukrainian, mostly with a short summary in Russian).
ASE: *Arkheologicheskii Sbornik*, Hermitage, Leningrad.
Bulletin: *Bulletin of the University of London Institute of Archaeology*.
IADK: *Istoriya i Arkheologiya Drevnego Kryma*, Kiev 1957.
KSAMO: *Kratkie Soobshcheniya Arkheologicheskogo Muzeya*, Odessa.
KSIK: *Kratkie Soobshcheniya Instituta Arkheologii*, Kiev.
KSIAM: *Kratkie Soobshcheniya Instituta Arkheologii AN SSSR*, Moscow.
KSIIMK: *Kratkie Soobshcheniya Instituta Material'noy Kultury*, Moscow.
MASP: *Materialy po Arkheologii Severnogo Prichernomorya*, Odessa.
MDAPV: *Materialy i Doslizhdeniya po Arkheologii Prykarpattia i Volyni*, Kiev (in Ukrainian, mostly with a short summary in Russian).
MIA: *Materialy i Issledovaniya po Arkheologii SSSR*, Moscow-Leningrad.
MKAS: *Reports of the 1st Congress of the Slavonic Archaeology*, Warsaw 1965; Wrocław-Warszawa-Kraków 1969.
NSA: *Novoe v Sovetskoy Arkheologii*, (MIA 130), Moscow 1965.
Rapports: *Les Rapports et les Informations des Archéologues de l' URSS, VI Congrès International des Sciences Préhistoriques et Protohistoriques*, Moscow 1962 (mostly in French; some articles in English).
SA: *Sovetskaya Arkheologiya*, Moscow.
SVOD: *Svod Arkheologicheskikh Istochnikov. Arkheologiya SSSR*, Moscow.
Tezisy: *Tezisy Dokladov Sovetskoy Delegatsii na I Mezhdynarodnom Kongresse Slavyanskoy Arkheologii v Varshave, 1965*, Moscow 1965.
VDI: *Vestnik Drevney Istории*, Moscow-Leningrad.
ZAO: *Zapiski Odesskogo Arkheologicheskogo Obshchestva*, Odessa.

1. *Bulletins* No. 6 for 1966, No. 7 for 1968, Nos. 8 and 9 for 1969/70 (pp. 94-129, 43-83, and 117-150, respectively).

Publications of a general character

During the half of a century that has elapsed since the publication of a series of classical works on the Scythians by the eminent scholars, E. H. Minns, M. Ebert, M. Rostovtsev, G. Borovka, etc., many excavations and researches have been pursued, the results of which supplement, or alter, to various degrees the views and ideas promulgated by these authorities. During the period under review, a series of special books and monographs, and a large number of articles appeared devoted to the publication of the results of new studies, and dealing with various aspects of Scythian history, life, and culture.

First to be mentioned is the magnificent volume *Sokrovishcha Skifskikh Kurganov* (*The Treasures of Scythian Barrow Graves*, Praha 1966, 120 pages, 331 + 23 mostly coloured figures, 4°) by M. I. Artamonov, former Director of the Hermitage Museum, Leningrad, and its recent English edition, *Treasures from Scythian Tombs* (London 1969; Thames and Hudson, with an introduction by T. Talbot Rice. 296 pages, maps, 190 coloured and 298 black-and-white plates). It contains a description and splendid illustrations of the rich treasures found in Scythian royal tombs of the 6th to 3rd centuries B.C. in the Ukraine and the Caucasus, at present forming part of the Hermitage Collection in Leningrad.

Of a different character are paperbacks, both devoted to the Scythians. The first of these, *Skify* (*The Scythians*, Moscow 1966, 600 pages, many unnumbered figures in the text) by A. P. Smirnov, gives a popular account of all main topics connected with the Scythians in Europe. The tales by Herodotus regarding the origin of the Scythians are quoted and explained; the culture and life of the Scythians as reflected in their burials and the material from their settlements and earthworks is described; special attention has been given to their armament, art, etc. There is also a list of works recommended for further reading. The other paperback, *Sokrovishcha Skifskikh Tsarey* (*The Treasures of Scythian Kings*, Moscow 1967, 128 pages) by I. Brashinskii, is a popular narrative on the excavation of a series of famous Scythian royal graves in the Ukraine, the Crimea and the North-West Caucasus. Brief biographical notes of their excavators are included, the most characteristic finds from the tombs described and their significance highlighted. A special chapter deals with the history of the famous forgeries of Scythian antiquities, their forgers and traders.

Of wider scope is the book *Khudozhestvennye Sokrovishcha Drevney Moldovii* (*Art Treasures of Ancient Moldavia*, Kishinev 1969, 112 pages, 25 plates) by E. A. Rikman, which deals with outstanding finds from Bessarabia of the period from the 6th millennium B.C. to the 17th century A.D. The book *Skifiya VII-V Vekov do n.ery* (*Scythia of the 7th to 5th centuries B.C.*, Moscow 1959), was not available in London.

Mention should be made of two books on the Scythians published by western scholars during the period under review. The book *The Scythians* (Ancient Peoples and Places, London 1957, 3rd edition 1961, 255 pages, profusely illustrated), by T. Talbot Rice, is a well written popular book which, however, as pointed out by its reviewer, N. N. Pogrebova (*SA* 1959 (2), pp. 274-277), erroneously treats all ancient

steppe peoples between the Altai and the Carpathians as a uniform 'Scythian' people. The part dealing with the Scythians in Europe is based almost exclusively on the works by E. H. Minns and M. Rostovtzev published many years ago. The other book, *Die Skythen in Südrussland* (Basel 1963, 207 pages) by J. A. H. Potratz, is likewise profusely illustrated chiefly by drawings and photographs of parts of horse harness to which about a half of the book is devoted. I reviewed it in the *Bulletin* 5 (1965, p. 93).

Brief descriptions of the Scythian culture and discussions on their history and development may be found in general works on the archaeology of the U.S.S.R. quoted in my former reports. Among the more important is the VIIIth chapter in Volume I of the work *Ocherki Istorii SSSR (Essays on the History of the USSR)*, Moscow 1956, pp. 283–361 written by six authors, and also chapter 5 of the collective work in Ukrainian, *Narysy Starodavnoy Istorii Ukrainskoy RSR (Essays on the Ancient History of the Ukrainian SSR)*, Kiev 1957, pp. 109–213), which is in fact a monograph on the Scythian culture in the Ukraine written by V. A. Illinska and O. I. Terenozhkin.

V. D. Blavatskii, in two articles (*SA* 1964 (2), pp. 13–26; 1964 (4), pp. 25–35), discusses Greek trade relations with the Scythians, Sarmatians and other native peoples of the North Pontic lands during the period from the 7th to 5th centuries B.C., and then from the 4th century B.C. to the 3rd century A.D.; but his main concern is the influence that the Greeks have exercised on the religion, art, culture, etc. of these peoples. In another article, the same author (in *Drevnosti Vostochnoy Evropy, MIA* 169, 1969, pp. 29–32) deliberates on the northern border of Herodotus' Scythia, and puts it erroneously along the line approximately Mogilev-Briansk-Orel, placing accordingly (wrongly) the Melanchlaeni north of it. Greek imported articles from mainland and colonies in the North Pontic area during the period from the 7th to 5th centuries B.C. (including pottery, wine and oil in amphorae, beads, various personal ornaments, mirrors, weapons, etc.), were discussed by N. A. Onayko (*SA* 1960 (2), pp. 25–41); he also devoted a special volume (*SVOD D-1-27*, Moscow 1966, 70 pages, 25 plates) to these topics; a few maps show the diffusion of the articles.

A number of outstanding but so far unsolved problems relating to the archaeology of the Early Iron Age in the U.S.S.R., especially to the Scythians, have been disclosed by A. P. Smirnov (*KSIAM* 94, 1963, pp. 3–8), and the report on the 'Second Moscow Conference on Problems of the Scytho-Sarmatian Archaeology' by V. G. Petrenko (*SA* 1968 (3), pp. 297–303), gives a good insight into the current trends in Soviet archaeology relating to the Scythians and on topics with which it is concerned at present. In this context mention may also be made of the work *Rannyaya Istoriya Iranskikh Plemen Predney Azii (The Early History of Iranian Tribes of Western Asia)*, Moscow, 1970, 396 pages) by E. A. Grantovskii, which is concerned with the period from the 9th to the 6th, partly to the 5th, centuries B.C., and is to a great extent based on the results of archaeological research in Transcaucasia, Soviet Central Asia and Iran.

Finally, there are two reports by N. K. Lisitsyna (*KSIIMK* 77, 1959, pp. 122–133; *KSIAM* 86, 1961, pp. 117–138) on archaeological excavations in the U.S.S.R. in 1956 and 1957–1958 respectively; and also the volume *MIA* 113, *Lesostepnoe Kultury Skifskogo Vremeni* (*Forest-Steppe Cultures of the Scythian Age*, Moscow 1962, 152 pages); it contains five articles by five authors which will be reviewed in the relevant sections of this report.

The origin and changes of the Scythian culture

The origin of the Scythians, as reflected in Scythian legends has been discussed by V. P. Petrov and M. L. Makarevich (*SA* 1963 (1), pp. 20–31), and L. S. Klein (*SA* 1963 (4), pp. 27–35) deliberates on the origin of the Royal Scythians. He is of the opinion that the 'royal' tombs, the 'catacombs' of the 4th and 3rd centuries B.C., were a survival of the traditions of the Bronze Age 'Catacomb culture' in the steppe north of the Caucasus. That the Royal Scythians had arrived from that region is indicated by the admixture of the brachycephalic racial elements in their graves and by the deformation of skulls. However, such a conclusion cannot be applied to the Royal Scythians of the Early Scythian period, of the 6th and 5th centuries B.C.; it fits only the Scythians of the Late Scythian period of the Ukrainian steppe country, who must have invaded it at the turn of the 5th and 4th centuries B.C.

Noteworthy is the fact that in spite of nearly two centuries of archaeological excavations in the Ukraine, no richly furnished 'royal' burials of the time of Herodotus, of the 5th but also 6th centuries B.C., have been found in the steppe country on the lower Dnieper, the presumed Gerrhus country where, according to Herodotus, Scythian kings were buried. Furthermore, neither have burials of the Scythian commoners of the Early Scythian period been uncovered in the Ukrainian steppe; this calls to mind the remark by Herodotus that the rank and file Scythians studiously avoided the use of foreign (Greek) customs and imposed severe punishment on those who evaded this maxim. It seems, therefore, that at that time the Early Scythians still kept to their ancient Srubnaya culture, and that only the arrival, by the end of the 5th century B.C. of eastern newcomers (probably Sauromatians) brought about the change. In this connection the contribution by L. S. Klein (*ASE* 2, 1961, pp. 45–56) may be mentioned, in which the author analyses both ancient records and actual archaeological material in order to establish the areas kept by the Royal and the Nomad Scythians. He concludes that the latter must have lived in the western half of the Crimea and in the steppe south of the lower Dnieper, whereas the Royal Scythians were in possession of the eastern part of the peninsula and of the steppe that extended east of the Nomad Scythians up to the Don. The names of the Scythian kings mentioned by Herodotus and the royal burial ritual described by him relate to the Scythian Nomads who lived close to Olbia, but not to the distant Royal Scythians. The author's thesis that the 'catacomb graves' of the Late Scythian period were a local development is erroneous: their spread was the outcome of the arrival in the country of newcomers (Sauromatians) from the country on the lower Volga. This is corroborated

by the results of the anthropological study of the royal skulls in a series of Scythian barrow graves of the Late Scythian period in the country on the Dnieper by B. V. Firshtein (*Voprosy Antropologii* 22, 1966, pp. 62 ff.) which revealed that some of these represent racial types proper to the Volga steppe and Siberia of the preceding period.

M. S. Sinitsyn (*MASP* IV, 1962, pp. 33–60) discusses the substantial changes in the Scythian culture that took place around 400 B.C., and points to close parallels between the Late Scythian burial rites of the country on the Dnieper and the Scythian burials of the North Caucasus of the preceding period, the 6th–4th centuries B.C. However, he wrongly interprets these similarities as resulting from the arrival, around 600 B.C., of the Early Scythians from the Caucasus; in fact, the changes in question took place two centuries after the arrival of the Early Scythians. The destruction, around 400 B.C., of settlements in the valleys of the Ukrainian steppe rivers, mentioned by the author, was evidently consequent to the conquest of the North Pontic steppe country by some Sauromatian tribes and possibly also by the Caucasian newcomers. The changes in the Scythian culture at the turn of the Early and Late Scythian period were also discussed by M. I. Vyazmitina (*SA* 1969 (4), pp. 62–77) who likewise deliberates on their causes, which were, according to her, of an economic nature.

Racial and social questions

The articles by Ia. V. Domanskii (*ASE* 2, 1961, pp. 26–44) are devoted to ancient settlements on the lower Southern Bug of the period 7th to about the 2nd centuries B.C., and in particular to the study of the reciprocal relations between the Olbian Greeks and the indigenous population, the Callipides of the ancients. According to the author, the latter were of Iranian-Scythian stock who were subjected to a strong Greek influence. In the same area around Olbia lived also the Greeks in their own villages, the remains of some of which were recently investigated, but the two racial groups had not amalgamated during the period under review; each lived its own life. The social position of the non-Greek inhabitants of Olbia has also been discussed by the author.

It does not seem that Domanskii is right in considering the indigenous population, the Callipides, as of Iranian stock; they seem to have been rather of Thracian origin, perhaps with some Scythian admixture. This assumption is supported by a number of articles by several authors in the important paperback *Drevnie Frakiytsy v Severnom Prichernomorie* (*Ancient Thracians in the North Pontic country*, Moscow 1969, *MIA* 150, 192 pages), already mentioned in my previous report (*Bulletin* 8 and 9, p. 123), which deal with topics connected with the Scytho-Getic (Thracian) relationship during the period under review. In one of these (pp. 61–95), A. I. Meliukova discusses the actual archaeological material of the country on the middle and lower Dniester, and quotes the few remarks by ancient authors relating to the Scytho-Getic border. She concludes that already in the 6th–5th century B.C. the Dniester probably formed the boundary between the two peoples. During the Late Scythian

period the Getae crossed the Dniester and reached the lower Dnieper. However, the age-long—since the Neolithic—close connections of the Ukrainian cultures of the regions west of the Dnieper with their coeval cultures in Romania, well reflected in the archaeological material, suggest a much earlier presence of Thracian tribes in the Ukraine.

A northern branch of the large Thracian assemblage (the Cimmerians?) seems to have been the aboriginal population of the country between the Dniester and the Dnieper. This is suggested by the North Pontic toponomy and ethnonomy recorded by ancient authors, as presented by V. P. Petrov (*MASP* IV, 1962, pp. 227–234), although his views have been contested by other scholars, e.g. by A. I. Meliukova (*Materialy i Issledovaniya po Arkheologii Iugo-Zapada SSSR i Rumynskoy Nar. Resp.*, Kishinev 1960, pp. 145–147; and *MIA* 96, 1961, pp. 51 ff.). See also A. C. Florescu in *Arheologia Moldovei* (II/III, Iași 1964, pp. 210–215).

Two more articles in the paperback '*Drevnie Frakiytsy*' mentioned previously deserve some attention. In one of these (pp. 35–60), all late Scythian earthworks of the 4th–3rd centuries B.C. on the lower Dnieper were described by T. D. Zlatkovskaya and L. L. Polevoy, who discussed political problems connected with their construction. In the second article, by M. I. Vyazmitina (pp. 119–134), Thracian elements reflected in the pottery from these earthworks, and in its decoration, have been discerned and debated. The author points out that Scythian legends recorded by Herodotus, dynastic connections between Scythian and Thracian rulers, and Thracian cults and reliefs representing Thracian deities common in Olbia, reflect close connections that must have existed between these two peoples.

Several Soviet scholars are of the opinion that the indigenous agricultural population of ancient Scythia, subdued by the nomad Scythians, was proto-Slavonic. Such views were expressed by A. I. Terenozhkin in his several articles, in particular in the paper read at the Warsaw Congress of Slavonic Archaeology (*Tezisy*, pp. 24–26; *MKAS*, pp. 225–228, in Russian and English). In this context the work by L. Zgusta, *Die Personennamen Griechischer Städte der nördlichen Schwarzmeerküste* (Praha 1955) should be mentioned. In the study of a few thousands of personal names recorded in Greek North Pontic colonies, only names of Greek, Scytho-Sarmatian and Thracian, and a small number of some of other origin, appear but definitely none which in any way could be derived from the Slavonic. This fact entirely dismisses any theories considering as Slavonic the indigenous population of ancient Scythia. I have commented on this question (in English) in *Acta Baltico-Slavica* V (Białystok 1967, pp. 1–17).

A. I. Terenozhkin (*AK* XIX, 1965, pp. 22–35) briefly describes a number of settlements and burials investigated along the northern border of the forest-steppe zone, and concludes that south of the line, running approximately from Kiev westwards to Kremenets in Volhynia, lived Herodotus' Scythian-Husbandmen on whom, to the north, the Neurians bordered. V. A. Illinska (*AK* XXIII, 1970, pp. 23–39) comments on the views of several scholars regarding placing the ancient Androphagi,

Melanchlaeni and Budini of Herodotus; she then discusses the question of attributing to them the actual archaeological material of the Early Scythian period in the Ukraine and the neighbouring areas. Her conclusion that the Sula-Vorskla-Donets groups of the Scythian culture east of the Dnieper should be regarded as the equivalent of the Scythians agriculturalists (Georgi) is not convincing; it is in disagreement with their position as described by Herodotus (IV, 18). The people seem to have been his Androphagi who 'are the only people that eat human flesh' (IV, 106): human bones have been found in kitchen refuse in seven earthworks that belonged to all the three groups of the Scythian culture of this area (Illinska, p. 35), an occurrence which has been recorded in none of the remains of other cultures in that region of that period. Identification of these groups with the Androphagi has been postulated by B. A. Shramko in *Drevnosti Severskogo Donetsa (Antiquities of the Donets, Kharkov 1962; the book has been quoted by V. A. Illinska, but it is not available in London).*

The social order of the Scythians in the Ukraine has been deliberated on by A. I. Terenozhkin (*SA* 1966 (2), pp. 33-49), and the social position of women, as reflected by Scythian female burials in both the steppe country and the forest-steppe zone has been discussed by O. D. Ganina in her two articles (*Pratsi Kyivskoho Derzhavnoho Istorychnoho Muzeiu* I, Kiev 1968, pp. 175-183, in Ukrainian; *ZOAO* 1-34, 1960, pp. 96-104, in Russian). She points out that burials of Scythian armed women appeared in the Ukraine already in the 6th century B.C., although they were mostly of the Late Scythian period.

Economy

The book *Istoriya Skotovodstva v Severnom Prichernomor'ie (History of Stock-breeding in the North Pontic Country, Moscow 1960, MIA 53)* by V. I. Tsalkin and P. D. Liberov, deals with the osseous material from 22 Bosporan and Crimean towns and settlements, Scythian Neapolis inclusive, 16 sites from the southern Ukraine including Olbia, and one site in the North-West Caucasus. Among the 320,000 bone pieces representing 12,500 individual animals, bones of several domesticated and wild species were distinguished; of special interest are two reindeer bones found in Olbia, and single camel bones found in the Kamyanka earthwork on the lower Dnieper, in Scythian Neapolis and in a few Greek colonies in the Crimea. It may be mentioned that camels were domesticated probably by the Andronovo people in Central or Eastern Kazakhstan in the first half of the 15th century B.C. A figurine of a two-humped camel from about that time was found in the Andronovo settlement at Ushkatta near Orenburg (E. E. Kuzmina, *SA* 1963 (2), pp. 38-46) and the earliest camel bones in Scythia were found in Voronezh in the remains of a 'pre-Scythian' settlement in which, however, an iron awl and traces of smelting iron from local ore were found (*Arkheologicheskie Issledovaniya v RSFSR, 1934-1936; Moscow-Leningrad 1941, editor V. V. Holmsten, p. 160)* which suggest a rather later date for the site. Another early find was a skeleton of a camel in the female royal barrow grave II of the Late Scythian period at Nowosiółka near Vinnitsa (A. Bydłowski, *Swiatowit* V, Warszawa 1904, p. 60).

A similar study, *Drevnee Zhivotnovodstvo Plemen Vostochnoy Evropy i Sredney Azii* (Ancient Stock-breeding by the East European and Central Asiatic Tribes, *MIA* 135, 1966, 160 pages) by V. I. Tsalkin, of the osseous material from the East European steppe country and Soviet Central Asia of the period from the 9th century B.C. to the 5th century A.D., has already been quoted in my previous report (*Bulletin* 8 and 9, p. 20). The same author (*MIA* 151, 1969, pp. 128–136) also published the results of his study of the osseous material of the Scythian period from settlements, earthworks and barrow graves of the country on the middle Don. The study revealed that the material differs from that excavated in sites of the area on the upper Don, in the forest-steppe zone, but is similar to that found in the remains of the Scythian period in the country west of the Dnieper. The osseous material from settlements of ancient Colchis (Transcaucasia) of the period from the 5th to 2nd centuries B.C. has been discussed and classified by G. A. Lordkipanidze (*SA* 1967 (1), pp. 27–39). Mainly cows and pigs were represented, but bones of wild animals and fishes were also frequent.

The osseous material from earthworks of the Diakovo, Iukhnovo and Upper Oka cultures of the Early Iron Age, situated in the deciduous forest zone of Eastern Europe, has been studied by V. I. Lyapushkin in the work *K Istorii Zhivotnovodstva i Okhoty v Vostochnoy Evrope* (On the History of Stock-breeding and Hunting in Eastern Europe, *MIA* 107, 1962, 140 pages). The osseous material from the East European forest zone was also studied by Iu. A. Krasnov (*KSIAM* 112, 1967, pp. 31–37) who in his brief report points to some differences in the sets of animals bred in distinct regions of the area; they are illustrated by a map on p. 32.

In another article, Iu. A. Krasnov (*SA* 1968 (2), pp. 3–22) discusses the date of the beginning of agriculture in the East European forest zone. Very few ancient ploughs were found in that area; finds of sickles, ethnographic and partly linguistic data form, therefore, the main basis for the establishment of the date. The results of this research are produced in a series of four maps which show the conjectural extent in the East European forest zone of plough farming by the end of the Bronze Age (p. 12); in the Early Iron Age and the middle of the first millennium A.D. (both on p. 15); and in the second half of the first millennium A.D. (p. 18). The agricultural technique of the various tribes in Eastern Europe during the Scythian period and the following one till the beginning of the Christian era, has been discussed by B. A. Shramko (*SA* 1961 (1), pp. 73–90). According to this author the remains of a wooden plough found in a bog at Tokari (near Sumy in the north-eastern Ukraine) were of the middle of the first millennium B.C., contrary to the opinion of other authors who dated it to the mid-first millennium A.D. A similar plough, dealt with by the same author (*SA* 1964 (4), pp. 84–101), has been found in the Sergeevskii peat bog near Briansk; he is inclined to date it—like the above—to the Scythian period.

The article by V. R. Bukin (*SA* 1963 (2), pp. 47–56) is devoted to the origin and development of vineyards and orchard culture in Eastern Europe; their earliest traces, in the Crimea, have been noticed in the 6th and 5th centuries B.C.

A. A. Bobrinskii (*SA* 1961 (2), pp. 21–36) gives a brief history of the potter's wheel in the U.S.S.R.: it was invented somewhere in the East Mediterranean area, introduced to Urartu,^{*} Soviet Central Asia, and then gradually to other parts of the country.

Metallurgy

V. F. Petrun (*AK* XXII, 1969, pp. 68–79) deliberates on the origin of stones from which a variety of implements found along the course of the river Ingulets and its tributaries were made; some were of local rocks but several were brought there from distant regions. On the other hand, bronze objects found in that area mostly originated from distant countries, mainly from Transylvania.

Investigation by S. A. Izyumova (*SA* 1967 (1), pp. 122–139) of a large metallurgical centre of the 6th to 3rd centuries B.C. established at the earthwork of Satinki near Tula, has shown that it worked on imported raw material. Many moulds for casting personal ornaments, arrow-heads and other bronze objects were found there. The results of spectrographic-analysis of 45 bronze and several gold ornaments found mainly in barrow graves of the Scythian period in the region of Voronezh on the middle Don, were published by E. N. Chernykh and T. B. Bartseva (*MIA* 151, 1969, pp. 137–142). E. N. Chernykh (*KSIAM* 115, 1969, pp. 3–14) also discusses the bronze industry of the Urals of the period from the end of the 3rd millennium to about the 9th century B.C. Several centres of this industry have been distinguished and the period established in which they were active. The author also discusses various problems involved and produces the results on a graph on p. 10.

B. A. Shramko, L. A. Solntsev and D. L. Fomin (*SA* 1963 (4), pp. 36–57) discuss the technique of iron working in the Scythian forest zone during the period from the 7th to 4th centuries B.C., and publish a series of photographs of microstructure of the iron objects studied. An article by B. A. Shramko (*KSIAM* 91, 1962, pp. 72–77) is devoted to the establishment of the source of iron ores used by the various Scythian industrial centres. The author points out that the main Scythian centre at the earthwork of Kamyanka on the lower Dnieper relied on the supply of local bog iron ore, but not on ore from Kryvoy Rog (a distance of about 60 km) as generally agreed. He quotes several settlements of the Scythian and Sarmatian periods situated mainly in the eastern part of the Ukraine, in which traces were found of exploitation of local bog iron ore, of foundries and ironwork. B. A. Shramko (*SA* 1969 (3), pp. 53–70) also brings the results of his study of iron implements found in the steppe and forest-steppe zones of ancient Scythia of the 7th to 3rd centuries B.C. His main interest is in implements which served for working on the production of a variety of simple but also quite complicated iron tools. They reveal the various types of technique and different processes applied by Scythian forges. Finally, the same author jointly with L. D. Fomin and L. O. Solntsev (*AK* XXIII, 1970, pp. 40–59), gives account of their research on the technique by which the various types of Scythian iron weapons were made in the south of Eastern Europe. The results of their metallographic and radiographic

analyses are discussed and the authors conclude that the weapons were made by local smiths in various centres all over the area.

The article by L. A. Solntsev, R. B. Stepanskaya, L. D. Fomin and B. A. Shramko (*SA* 1969 (1), pp. 40–47) is devoted to a few fragments of an iron kettle found in the remains of a settlement of Greek-barbarian type of the 4th–3rd centuries B.C. investigated at Nikolaevka west of Odessa. Spectrographic-analysis revealed that the kettle was of pig-iron, and may be regarded as one of the earliest articles produced by this technique in the U.S.S.R.

Armour and weapons

The work *Vooruzhenie Skifov (The Armature of the Scythians)*, Moscow 1964, *SVOD* D-1-4, illustrated by 23 plates) by A. I. Meliukova, has been devoted to the various categories of Scythian weapons, but it also deals with those of the pre-Scythian period in the Ukraine. The weapons of their kindred folk, the Sauromatians (early Sarmatians) have been dealt with in the book *Vooruzhenie Savromatov (The Armature of the Sauromatians)*, Moscow 1961, *MIA* 101, 163 pages, 58 figures, five folded tables) by K. F. Smirnov. The monographs, mentioned further below, devoted to the various regional groups of the Scythian culture, usually contain also chapters dealing with weapons. There are also special articles dedicated to some particular types of weapons and armour.

In this context two articles in the volume *Drevnosti Vostochnoy Evropy*, (*MIA* 169, 1969) deserve mention. The first of these, by A. Kh. Khalikov (pp. 275–281), deals with ten pre-Scythian iron daggers with bronze grips of the North Caucasian-Chornii Lis type, of the 8th and 7th centuries B.C., found in the middle Volga-lower Kama country, and also with a number of representations of such daggers incised or carved on stone stelae in the same area. The author points out that close analogies to these daggers may be found in the Early Tagar culture in the Minusinsk country on the Yenissey and in the remains of the Maiermirskaia culture of the Western Altai Mountains and the upper Ob country. The other article, by M. P. Abramova (pp. 3–11) is devoted to the development of North Caucasian daggers and swords during the period from the 8th century B.C. to the 2nd century A.D., mainly during the Sarmatian Age. The development of a few types of these weapons distinguished by the author is illustrated in a chronological graph (p. 5).

The development of Scythian bronze and iron battle-axes and their use, by steppe peoples of the period under review, has been discussed in a few articles. Mentioned may be that by A. F. Medvedev (*KSIAM* 102, 1964, pp. 3–7) and also by B. A. Litvinskii (*SA* 1966 (4), pp. 51–69). The study by A. M. Khazanov in the publication of the Institute of Ethnography of the Soviet Academy, *Materialnaya Kultura Narodov Sredney Azii i Kazakhstana* (Moscow 1966, pp. 29–44) follows the development of the bow mainly in Asia, but a similar one took place also in Europe. Around 600 B.C., the ancient simple bow was replaced by the composite reflex bow characteristic of the Scythians, to be in turn superseded, approximately in the first century A.D., by the formidable Hunnic bow strengthened by bone inlays.

The development of Scythian bronze and iron battle-axes and their use, has been discussed by V. A. Illinska (*AK* XII, 1961, pp. 27–52), who also deliberates (*NSA*, 1965, pp. 206–211) on the early Scythian zoomorphic bronze sceptres and on their similar but preceding Caucasian and Central European ‘Thraco-Cimmerian’ specimens.

Scythian armour has been dealt with by E. V. Chernenko in three consecutive articles: on battle-belts (*AK* XVI, 1964, pp. 27–45), on armour made of raw hide (*AK* XVII, 1964, pp. 144–152), and on scale armour (*AK* XVIII, 1965, pp. 77–104). All the relevant specimens found in the Ukraine, the Crimea, the North-West Caucasus and the area on the lower and upper Don have been taken into account and their geographic distribution shown on sketch maps. On the other hand, A. P. Mantseвич (*SA* 1969 (1), pp. 19–30), who devoted her study to Scythian shields, points out that narrow iron strips found in a series of Scythian burials have been erroneously reported in excavation records as remains of armour. They were in fact remains of shields, which according to her, were mostly imported from Thracia or Macedonia; the same applies also to Scythian armour.

Bronze shinguards (harness) have been dealt with by L. K. Ganina (*ASE* 7, 1965, pp. 5–27), who described and set out in a table (on 11 pages) all the 30 specimens found in the North Pontic area, eight of these within the territory of the Bosporan Kingdom. They were all of the 4th century B.C.—except two specimens—and were of Greek origin. An Attic bronze helmet of the first half of the 4th century B.C., found at Stanitsa Temnolesskaya in the North-West Caucasus, has been described by P. A. Ditler (*SA* 1964 (1), pp. 315–320) jointly with ten other similar helmets found in the U.S.S.R.

Various finds

A few articles deal with some specific objects of the Scythian period. A bronze stamp for production of small thin gold plaques, found in the remains of the 4th–3rd century B.C. in the huge earthwork of Belsk near Poltava, and a bronze stamp for decorating small golden plaques, from the earthwork Kamyanka-Dniprovskaya on the lower Dnieper, have been discussed by B. A. Shramko (*SA* 1970 (2), pp. 217–221); both earthworks were important industrial centres of the Scythian Age.

A. P. Mantseвич (*AF* pp. 145–150) devotes special attention to the cast bronze cauldron from the central burial of the famous Solokha barrow grave, and to similar specimens found in other Scythian burials. She distinguishes their two main types, the archaic one of the 6th–5th centuries B.C. (Kelermes), and the classical type of the 5th–4th centuries B.C. (Solokha).

Horse bridles of the 6th century B.C. were discussed by V. A. Illinska (*AK* XIII, 1961, pp. 38–61), who also devoted special attention to zoomorphic socketed bronze pole-tops (*AK* XV, 1963, pp. 33–60). The early ones (6th–5th centuries B.C.) were found mainly in the North-West Caucasus, and also in Scythian burials of the country on the Sula; the later ones (5th–4th centuries B.C.) were found mainly in the Ukrainian

steppe country. Of interest is a specimen described by G. P. Sergeev (*KSAMO* 1963, pp. 68–71), found at Raskautsy on the lower Dniester in Bessarabia. A similar one was found in the Ulskii Aul in North-West Caucasus, which suggests the Caucasian origin of the Bessarabian specimen dated by the author as the 5th–4th century B.C. It may be added that its appearance in Bessarabia was probably connected with Scythian tribal movement at the end of the 5th century due to the advance into Scythia of Sauromatian tribes from beyond the Don and the Volga.

V. I. Giliyev (*MIA* 151, 1969, pp. 109–127) discusses zoomorphic hooks of the Scythian period made of bone, antler, iron, bronze and silver, and their decorative motifs. The hooks, two main types of which have been distinguished, were in use from about 400 B.C. to about the middle of the 3rd century B.C. They were found in the area around Voronezh and further east up to the Urals, within the Sauromatian territory and also in the country on the middle Kama further north. West of the Don they appear rather exceptionally.

G. A. Tiratsyan (*SA* 1968 (4), pp. 190–198) describes a gold pectoral excavated in 1962 on the Armavir Hill, about 50 km. west of Erevan in Soviet Armenia. He quotes several similar specimens and dates that from Armavir to the 6th–4th century B.C. He considers it to be a product of a local goldsmith of the post-Urartian Achaemenid period.

An important hoard was found at Pishchane on the lower Supoy, a left tributary of the middle Dnieper. According to O. D. Ganina (*AK* XVI, 1964, pp. 195–198), the hoard consisted of 14 bronze vases of Italian origin, dishes and buckets, found in an oak dugout.

Art and beliefs

The so-called 'Scythian animal style' in the art of the steppe peoples of the period under review was the theme of several special articles, some of which are devoted to particular aspects and motifs of this art, or discuss its origin. These topics were also deliberated by several western scholars among whom are R. D. Barnett, R. Ghirshman, H. J. Kantor, E. D. Phillips, J. A. H. Potratz, and also K. Jettmar whose outstanding book *Art of the Steppes—The Eurasian Animal Style* (London 1967, *Art of the World* vol. XXI, translated from the German) may be mentioned here.

According to the opinion of M. I. Artamonov, shared by many western authors, presented in his three articles (*Soobshcheniya Gos. Ermitazha* XXII, Leningrad 1962, pp. 30–35; *Omagiu lui George Oprescu*, Bucuresti 1961, pp. 31–46; *SA* 1968 (4), pp. 27–45), the Scythian Pontic art originated in north-west Iran, and there also lay roots of the art of Asiatic Sacians. Similar views have also been expressed by N. Tchlenova in her paper *L'Art animalier de l'époque Scythique en Sibirie et en Pontide* (*Rapports* 1962, 21 pages). According to her, the common traits linking both the Pontic and Siberian animal styles go back to the common origin of the peoples concerned. She also emphasizes the role of the Karasuk style in the development of the

Tagarskaya art and also of the Sacian art in Siberia. The same ideas are expressed in two studies by the same author on the meaning and development of the stag motif in the 'Scythian' animal style, *Skifskii Olen (Scythian Stag)*, Moscow 1962, *MIA* 115, pp. 167–203) and *Le cerf Scythe (Artibus Asiae XXVI)*, Ascona 1963, pp. 27–70).

V. A. Ilinskaya (*SA* 1965 1, pp. 86–107) discusses the origin of the main decorative motifs of the early Scythian style of the 6th century B.C. in the North Pontic lands. She concentrates mainly on bone and antler cheek-pieces the terminals of which have been carved in the shape of animal heads; ram, bird, but chiefly of horse. She points out the basic difference between the style of these carvings and the new Pontic Scythian style of the subsequent period, of the 5th–4th centuries B.C., and deliberates on the nature of the difference. Similar studies by the same author, one of which has already been mentioned here (*AK* XV, 1963, pp. 33–60; *SA* 1967 (4), pp. 295 ff.) are devoted to the decorative motifs of Scythian pole-tops.

The carved, animal-style decorated bone plaques from barrow grave 2 at Zhabotin in the Ukrainian forest-steppe zone west of the Dnieper are the theme of the study by M. I. Vyazmitina (*SA* 1963 (2), pp. 158–170). She dates them at the 7th century B.C. and emphasizes the fundamental difference between the subjects and the manner in which these plaques were carved and those of the Melgunov-Litoy barrow grave which were imported from Western Asia. The Zhabotin items were products of local artisans who were well acquainted with the local fauna: this was the art of the afforested areas, not of the steppe country, as evidenced by the carved figures and heads of the elk. Similar ideas have been expressed by E. V. Yakovlenko (*SA* 1969 (4), pp. 200–207) who discusses the decorations made of boar tusks adorned with zoomorphic motifs, wolves, birds, etc., found in the country on the middle Dnieper. He points to their Sauromatian and Ananino analogies, where they were of the 6th and early 5th centuries B.C., whereas in the west, in the Ukraine, they were found in graves of the 5th century B.C.

Of different origin was the motif of the rapacious beast curled up which also appears in the Scythian art; this was discussed by A. I. Shurko (*SA* 1969 (1), pp. 31–39). It came from Western Asia in the 6th century B.C., and at the turn of the 6th and 5th centuries B.C. it was adopted by Olbian and Bosporan artisans, and subsequently copied by those of the steppe and forest-steppe who added to it some special features. V. G. Petrenko (*KSIAM* 89, 1962, pp. 54–56) publishes a bronze decoration of horse harness in the shape of a griffin's head, found in a flat grave of the 5th century B.C. at Grishchentsy near Kanev, and quotes a number of similar items found in ancient Scythia. A bone figurine in the shape of a dog, found in a barrow grave at Mastiugino near Voronezh, has been published by P. D. Liberov (*KSIAM* 89, 1962, pp. 60–65); it originally served as a handle of a small box of the late 5th or early 4th century B.C.

Different aspects of the Scythian art have been raised by A. P. Mantsevich (*Omagiul lui George Oprescu*, Bucureşti 1961, pp. 331–339), who emphasizes the Western Asiatic parallels to the golden bowl from the North-West Caucasian barrow

grave of Kelermes of the Early Scythian period, and in the pamphlet *Zolotoy Greben iz Kurgana Solokha* (*Golden Comb from the Solokha Barrow Grave*, Leningrad—Hermitage—1962, 28 pages inclusive 16 plates, in Russian and in French) she concludes that this object, and also a series of silver and gold vases and other articles found in Scythian barrow graves of the 4th–3rd centuries B.C., in the Ukraine were of Thracian origin, not Bosporan as commonly agreed. The same relates to the iron sword with a gold-plated grip and the gold sheath both from the Solokha barrow grave, discussed in another article by the same author in *Drevnie Frakiytsy v Severnom Prichernomor'e* (Moscow 1969, *MIA* 150, pp. 96–118), and to the high triangular head ornament made of a large piece of thin gold foil from the Karagodeuashkh barrow grave in the North-West Caucasus (*Soobshcheniya Gos. Ermitazha* XXIII, 1962, pp. 41–43).

V. B. Vinogradov (*SA* 1966 (2), pp. 298–301) describes the clay figurines of the Scythians found in a barrow grave at Stanitsa Chervlennaya in the North-East Caucasus of the 6th–5th centuries B.C. In their style they differ from those found in the Saco-Scythian remains in Asia and also from their co-eval Caucasian and Sarmatian figurines. The study by I. T. Kruglikova (*KSIAM* 124, 1970, pp. 3–11) deals with the representations of the deities of the indigenous agricultural population of the Bosporan Kingdom and their changes. They include bronze and terracotta figurines, reliefs, painted scenes in tombs, etc. Two graphs (p. 5) illustrate these changes during the period from the 6th century B.C. to the 3rd century A.D.

The petroglyphs of the period, evidently connected with some religious or magic beliefs and practices, were dealt with in my previous report (*Bulletin* 8 and 9, p. 122). In the meantime, however, a paperback has appeared, *Ocherki po pervobytnomu iskusstvu* (*Essays on Primitive Art*, Moscow 1969, *MIA* 165, 256 pages) by A. A. Formozov, who gives a brief review of all groups of petroglyphs, stone sculptures and stelae found in the U.S.S.R. both in Europe and in Asia, and discusses their meaning and purpose. A series of maps show the geographic position of the sites in which the relative remains were found of the period from the third to the early first millennium B.C. The rock engravings and paintings found in Tuva, in the Altai Mountains, have been described by M. Kh. Mannay-Ool (*SA* 1967 (1), pp. 140–146); they were of the time from the 7th century B.C. to the first century A.D. The author is interested mainly in the stag figures which he describes in detail.

Another category are Scythian anthropomorphic stelae. Two of these, found at Kalinovka near Nikolaev in the Ukraine, of the Late Scythian period, were described by N. G. Elagina (*SA* 1959 (2), pp. 187–196), who deliberates on the dress and weapons sculptured on the stones and concludes that they have some connection with the legends on the origin of the Scythians. A small stela has been recently found at Olkhovchyk near Amvrosiivka in the south-east Ukraine, and published by O. K. Takhtay (*AK* XVII 1967, pp. 205–207); it represents an armed Scythian warrior. It should also be mentioned that A. A. Formozov, in the work cited above (*MIA* 165, pp. 183 ff.) connects the stelae of the Ukrainian steppe and of the Crimea, with

the western influence brought to the area above by the people of the Globular Amphorae. The map on p. 183 shows the geographical extent of the stelae. A few anthropomorphic stelae were also found in the Checheno-Ingushetia in the North-East Caucasus; V. I. Markovin and R. M. Munchaev (*SA* 1964 (1), pp. 158–164) attribute them to the Late Koban culture of the 6th–5th centuries B.C.

Scythian deities, the names and attributes of whom have been recorded by ancient authors, have been discussed by M. I. Artamonov (*ASE* 2, 1961, pp. 57–87). He identifies them in the anthropomorphic representations in the actual archaeological material, shown on 28 figures in the text, and also points to the origin of several elements of the Scythian religion, and to Greek influence reflected in Scythian beliefs and representations of their deities. The significance and origin of the names of Scythian deities recorded by Herodotus have also been discussed by V. P. Petrov (*AK* XV, 1963, pp. 19–32). On the other hand, D. S. Raevskii (*SA* 1970 (3), pp. 90–101) discusses scenes represented on Scythian toreutic of the 4th century B.C. and expresses the opinion that they reflect the ideology of the Kingdom of Ateas which he (wrongly) assumes to have extended over the whole of ancient Scythia.

An unusual amulet deserves mention. This is the lower jaw of a leopard covered with a thin silver leaf, provided with a bronze ringlet, published by I. S. Vynokur and H. M. Khotiun (*AK* XIX, 1965, pp. 118–121). It was found in a well furnished Scythian barrow grave of the 5th century B.C. at Verkhni Panivtsi near Kamenets Podolskii. Another unusual find, reported by B. A. Shramko (*SA* 1957 (1), pp. 178–198) is imitations made of clay of corn grains found in an offering place of the earthwork of the Early Iron Age at Karavan in the province (oblast) of Kharkov. The author connects this find with the agricultural beliefs and cults of the population and quotes a few analogous finds.

Scythian remains in the west

The most comprehensive report on all main archaeological investigations and excavations in the Ukraine in 1967, is that by P. P. Tolochko (*AO* 1967, pp. 186–198).

Investigation of a number of barrow graves at Kolodnoe in the Carpatho-Ukraine, already outside Eastern Europe, has been reported in an article by G. I. Smirnova and K. V. Bernyakovich (*ASE* 7, 1965, pp. 89–115). The authors discuss the origin and the date of the Kustanovitsi group to which the burials belonged, and do not share the views in this respect pronounced by Czech and Hungarian scholars. According to the authors, the formation of the group was due to the arrival, by the mid-sixth century B.C., of some immigrants from the West Podolian Scythian group; it was in existence till the arrival of the Celts in the 3rd century B.C.

Two preliminary reports on excavation in 1958–1959 of a settlement of the Early Scythian period at Ivanye Puste in West Podolia have been published by O. D. Ganina (*AK* XIX, 1965, pp. 106–117; XXI, 1968, pp. 187–193) including the results of the classification of the osseous material and the study of the remains of cereals found there. Close relations with the Dacians are indicated by a large amount of Dacian wheel-made pottery found in the settlement. The lower occupation



Map 1 (for numbered sites see list below and opposite)

- | | |
|-----------------------------|--------------------------|
| 1 Złoczów | 7 Tiraspol |
| 2 Melnitsa and Ivanye-Puste | 8 Gradenitsy; Khansk |
| 3 Verkhni Panivtsy | 9 Nikolaevka |
| 4 Zhmerinka | 10 Roxolany; Nadlimansk; |
| 5 Rybnitsa | Pivdennoe |
| 6 Raskautsy | 11 Tyras—Belgorod |

- 12 Koshary
- 13 Olbia—Pitukhivka; Kozyrka
- 14 Nikolaev and Kalinovka nearby
- 15 Malaya and Bolshaya
Chernomorka-Beykush
- 16 Batorovka
- 17 Kaury; Lyubimovka
- 18 Simferopol; Scythian Neapolis;
sites in the valley of the Salgir
- 19 Sites in the region of
Bakhchisaray; Baydarskaya
valley and in the south-western
corner of the highland
- 20 Frotovoe and sites in the western
part of the Kerch Peninsula
- 21 Rybnoe-Arabag and sites on the
coast of the Azov Sea
- 22 Kerch and sites around
- 23 Kamyanka earthwork and
Solokha barrow grave
- 24 Skelki
- 25 Verkhne-Tarasovka
- 26 Nikopol; Chertomlyk barrow
grave
- 27 Gavrilovka
- 28 Olkhovchyk
- 29 Zashchita
- 30 Makiivka; Martonosha,
Pastyrskoe; Kutsivka
- 31 Melgunov barrow grave
- 32 Zhabotin
- 33 Novo-Georgiivsk
- 34 Kholodnyi Yar
- 35 Ryzhanovka
- 36 Nowosiólka
- 37 Grishchentsy
- 38 Trakhtemirov
- 39 Borispol-Borispol; Senkivka
- 40 Kryachkivka
- 41 Mala Saltanivka
- 42 Mala Ofirna
- 43 Troyaniv
- 44 Pishchane
- 45 Khotiv; Pirohiv
- 46 Kolochin
- 47 Goroshkov
- 48 Penturovo; Kozlovo
- 49 Troitskoe
- 50 Starshee Kashirskoe
- 51 Shcherbinskoe; Borysoglebskoe
- 52 Satinki near Tula
- 53 Mitino
- 54 Sergeevskii peat-bog near
Briansk
- 55 Kuzina Gora
- 56 Vtorye Terbuny
- 57 Demkino
- 58 Voronezh—Chastye Kurgany
- 59 Voloshino
- 60 Mastiugino
- 61 Russkaya Trostianka
- 62 Durovka; Khutor Gorodishche
- 63 Tokari
- 64 Basovka
- 65 Kamenka; Sosenska
- 66 Belsk; Khura
- 67 Poltava
- 68 Bolshaya Gomolsha
- 69 Kharkov; Cheremushny
- 70 Shovkova (Shelkovaya); Karavan
- 71 Alekseevka
- 72 Novaya Rozanovka
- 73 Rostov-on-the-Don; Liventsovka
- 74 Konstantinovskii
- 75 Verkhne-Podpolnyi
- 76 Elisavetovskoe; Koisug;
Safianovo; Khutor Gorodishche
- 77 Stavropol, find in the river
Mamayka
- 78 Ul'skii Aul
- 79 Stanitsa Elisavetinskaya
- 80 Semibratnye Kurgany
- 81 Karagodeuashkh barrow grave
- 82 Gelendzhik
- 83 Kelermes barrow grave
- 84 Khutor Druzhba
- 85 Dombay
- 86 Stanitsa Mekenskaya
- 87 Groznyi
- 88 Lugovoe-Muzhichi
- 89 Goyty; Starye-Atagi
- 90 Serzhen-Iurt
- 91 Zandak
- 92 Urbnisi-Kvatskhelebi
- 93 Tli
- 94 Meli-Gele
- 95 Enokavan
- 96 Karmir-Blur
- 97 Ararat Plain; Armavir; Erevan
- 98 Dzhravit-Metsamor
- 99 Amaras-Soso
- 100 Kyamil-Tepe
- 101 Uch-Tepe
- 102 Kara-Tepe
- 103 Chukhur-Kabala
- 104 Stanitsa Chervlennaya
- 105 Stanitsa Temnolesskaya
- 106 Antipovka
- 107 Ak-Burun (Nimphaea)
- 108 Zaozerne
- 109 Nemirov
- 110 Luki

horizon of another settlement investigated in the same area at Sukhostav by I. K. Sveshnikov (*AK* XI, 1957, pp. 106–114) was of the pre-Scythian period, and its upper horizon was of the Early Scythian Age; the material of the upper layer was very similar to that from Scythian settlements on the middle Dnieper which was due to the arrival in the country of eastern newcomers at the turn of the two periods. A settlement of the pre-Scythian Holihirady culture was investigated by the same author at Melnitsa, further south in West Podolia (*AO* 1967, p. 200). Finally, a few settlements of the Wysocko culture have been recently investigated on the West-Podolian-Volhynian border in the vicinity of Złoczów, as reported by A. Krushelnitskaya (*AO* 1968, p. 271).

A larger study by A. I. Meliukova (*MIA* 64, 1958, pp. 5–102), mentioned in my previous report (*Bulletin* 8 and 9, p. 126), is devoted to the Podolian group of Scythian remains in which she supplements and corrects some of the observations expressed by me in my monograph published in 1936; the second part of the article deals with the remains of the pre-Scythian and Scythian periods in Bessarabia, mainly with the earthworks on the Dniester in the region of Rybnitsa. According to the author, the Bessarabian culture of the 7th–6th centuries B.C. had exercised a great influence upon the culture of the Ukrainian forest-steppe country west of the Dnieper; later, in the 4th–3rd centuries B.C., the Bessarabian culture formed part of a large assemblage of Getic cultures of the basin of the lower Danube and of the sub-Carpathian area. In another article the same author (*KSIAM* 105, 1965, pp. 32–41) discusses Scythian elements in the culture of the Getae in Romania, mainly in Dobruja, of the period from the 6th to 3rd centuries B.C. A preliminary report on excavation of an earthwork of the middle Dniester group at Mateytsy near Rybnitsa was published by T. D. Zlatkovskaya (*MIA* 130, 1965, pp. 220–225).

The Early Scythian earthwork of Severinovka near Zhmerinka south of Vinnitsa, midway between the Middle Dniester and the West Podolian Scythian groups, was investigated by G. I. Smirnova (*ASE* 2, 1961, pp. 88–103). Its remains show close parallels to those of the West Podolian group; no Greek imported pottery was found there, and the local hand-made ware implies the survival of local forms of the preceding period.

A. A. Moruzhenko (*AO* 1966, pp. 201 ff.) reports briefly on investigation of the central part of the fortified area and of the huge defensive constructions of the famous Early Scythian earthwork at Nemirov near Vinnitsa. Pottery and other finds imply that the earthwork was in existence from the 7th to the 5th centuries B.C. The early date of its construction has been attested by a vessel of Villanova type described by B. N. Grakov (*SA* 1959 (1), pp. 259–261); it must have been made locally but bore a Greek inscription in characters proper to the end of the 7th and first half of the 6th centuries B.C. Greek, or Olbian, trade routes of that period have also been discussed in this article. Another large earthwork investigated in the same region, at Soroka on the Sob east of Vinnitsa, was of the Late Scythian period, of the 3rd century B.C., as reported by P. I. Khvaliuk (*AO* 1968, pp. 256 f.).

The steppe country on the lower Dniester

A special study by A. I. Meliukova (*MIA* 115, 1962, pp. 114–166) is devoted to Scythian barrow graves in the region of Tiraspol, excavated by I. Ia. Stempkovskii at the turn of the 19th and 20th centuries. Ten tables contain schematic drawings of the types of graves and of their contents. The author deliberates on the relationship between the Scythians of this group and their neighbours, and points to close parallels which link this group with the Late Scythian burials in the country on the lower Dnieper. Her reconstruction of political conditions at that period does not seem correct; the role of the Celtic Bastarnians, who since the 3rd century B.C. lived in the country, has not been taken into account.

I. T. Chernyakov (*ZOAO* 1/34, 1960, pp. 209–219) gives a brief account of the results of surveying the region around the Dniester liman. Over 29 sites of ancient settlements, mainly of the 4th to 2nd centuries B.C., were discovered; among these were the city of Tyras and five small Greek towns of the period 6th and 5th centuries B.C. The local hand-made ware found in a few sites was closely related to that from their co-eval settlements on the lower Southern Bug and the lower Dnieper; it also shows some connections with the hand-made ware of the lower Danubian sites. A similar report by A. I. Meliukova (*KSIAM* 84, 1961, pp. 113–124) was already mentioned in my previous report (*Bulletin* 8 and 9, p. 126), and in another one (*KSIAM* 94, 1963, pp. 64–72), she gives account of the results of investigation of settlements of the Late Scythian period (5th to 3rd centuries B.C.) at Khansk, attributable to the Getae, where also cremations in urns were found, and at Gradenitsy, both in the Bessarabian steppe country.

Results of excavation in 1957–58 of two earthworks on the liman of the Dniester were briefly summarized by M. S. Sinitsyn (*ZOAO* 1/34, 1960, pp. 189–201). Greek pottery of the end of the 4th and of the 3rd centuries B.C. was found in one of these, at Nadlimansk (Karagol); the other one, at Roxolany, constructed in the 6th century B.C., was originally a Greek settlement destroyed in the 4th century B.C. Subsequently, on its site a settlement of the indigenous Geto-Thracian population was set up which was in existence until the 2nd century B.C. Its pottery from both periods was dealt with by V. I. Kuzmenko and M. S. Sinitsyn (*KSAMO* 1961, pp. 79–87). The third settlement in this area, at Pivdennoe, (called also Iuzhnoe), investigated in 1961 was in existence from the 4th to the 2nd centuries B.C. It was described by A. G. Salnikov (*KSAMO* 1963, pp. 20–26); three short articles in the same periodical (pp. 93–101) by E. A. Gasova, L. D. Nakonechnaya and A. A. Ashrafiyan, deal with some special finds from this site.

A. I. Meliukova published several brief reports on her excavation in 1962 and 1964 of a settlement of the 4th–3rd centuries B.C. at Nikolaevka on the liman of the Dniester (*AO* 1965, pp. 93–96; 1966, pp. 201–205; 1969, pp. 279 f.; *KSIAM* 109, 1967, pp. 54–64) and on her excavation of a few barrow graves of the ‘Scythian nomads’ and of 40 ‘flat’ graves in the same village. The latter graves were burials of the local agricultural population; all burials excavated were of the 4th and early

3rd centuries B.C. The circumstance that the better furnished graves were ransacked in antiquity implies a social differentiation of the population; pottery found there was Greek but the weapons were Scythian. The author thinks that racially the population was rather Scythian, related to that on the lower Southern Bug and may be considered as the descendants of the Callipidae of Herodotus. Grave goods imply also its close connection with the Geto-Dacian tribes, to whom the earthwork at Orlovka, of the 8th to 3rd centuries B.C. has been attributed, investigated by R. D. Bondar (*AO* 1968, p. 281).

A study of a general character by M. S. Sinitsyn (*MASP* II, 1959, pp. 13–35) covers the cultural and racial conditions of the country between the Southern Bug and the Dniester during the Scythian and Sarmatian periods, from the 7th century B.C. to the 3rd century A.D., as reflected in the actual archaeological material and the records of ancient writers. The author concludes that three racial groups are well discernible in the country at that time, the indigenous (partly settled partly nomad) population which he considers as the Alazones of Herodotus and their descendants, the Iranian (Scythian and Sarmatian) nomad newcomers, and the Greeks who lived in their own town-colonies. The culture of the aborigines shows close links with that of Romania, which implies that they must have been of Thracian stock. The same author also discusses (*MASP* IV, 1962, pp. 61–72) trade relations of ancient settlements around the liman of the Dniester with Greece.

The country on the lower Southern Bug

Investigation by E. A. Symonovich (*KSAMO* 1964, pp. 145–153) of the area around the Tiligul liman revealed that the region was densely populated during the Scythian and Sarmatian periods. About 20 ancient settlements have been recorded there, including the earthwork at Koshary, situated at a distance of 700 m. from the Black Sea coast, at the southern end of the liman. 80 per cent of its pottery consisted of sherds of Greek wine and oil amphorae, which implies the trading character of the settlement. The cemetery situated nearby, that belonged to the earthwork, was investigated by E. I. Diamand (*AO* 1968, pp. 276–279). Another settlement on the same liman was investigated by N. N. Pogrebova (*KSIAM* 83, 1961, pp. 110–114); pottery characteristic of the Sabatynivka culture of the 11th to 9th centuries B.C. was excavated, but also pottery of later periods, of the time from the 6th to 1st centuries B.C. was found.

A. S. Rusayeva (*AIU*, pp. 141–145) gave a brief report on her investigation in 1965 of two settlements of the 6th–5th and 5th–4th centuries B.C. respectively, at Malaya and Bolshaya Chernomorka (formerly Beykush) on the Berezanskii liman, close to the mouth of the Southern Bug liman. Investigation of the same settlements in 1967 was reported by P. P. Tolochko (*AO* 1967, p. 191). Sites surveyed by E. F. Patokova (*ZOAO* I/34, 1960, pp. 202–208) in the area west of the Southern Bug are shown on her map, p. 203. V. L. Zuts (*AK* XXII, 1969, pp. 80–89) deliberates on the extent of the territory under Olbian rule; it extended between the liman of the

Southern Bug in the east and the Berezanskii liman in the west, reaching southwards to the Dnieper-Southern Bug liman. In the north, the limit formed approximately the line from Nikolaev reaching westwards the northern end of the Berezanskii liman.

Two ancient settlements were investigated both within the area presumably under Olbian rule, one at Pitukhivka (Petukhovka), about 17 km. south-west of Olbia, by H. S. Rusayeva (*AK XXI*, 1968, pp. 206–213), which was an urbanized agricultural settlement and its inhabitants were considerably Hellenized; and at Kozyrka, an earthwork about 10 km. from Olbia, investigated by A. V. Burakov (*AP XI*, 1962, pp. 49–96); its economy was much dependent on the connections with Olbia. The results of investigation of a late Scythian barrow grave of the 4th–3rd century B.C. in the town of Nikolaev have been published by V. Nikitin and E. Chernenko (*AIU*, pp. 109–110); the burial was ransacked in antiquity.

Two reports deal with Scythian burials in the steppe further north, in the basin of the Svinyukha, a tributary of the middle Southern Bug. In one of these, by E. F. Pokrovska and O. P. Didenko (*AK XXIII*, 1970, pp. 166–175) some of the 11 barrow graves excavated in the vicinity of Uman between 1912 and 1964 have been described, grave goods of which are at present in the Museum at Uman. They were all of the period 5th to 4th–3rd centuries B.C. Of the 5th century B.C. was a barrow grave at Zashchyta near Novo-Mirgorod (oblast of Kirovograd) described by N. M. Bokiý (*AK XXIII*, 1970, pp. 182–189; *AIU* pp. 110–114), in which a bronze pole-top in the Caucasian Scythian style was found and five quite large bronze (one silver-plated) decorative plaques in the shape of fantastic animals, in the Scythian style, among which a lion, eagle, a water bird and one of bovidae species, all winged, may be recognized.

Steppe country on the lower Dnieper

P. P. Tolochko (*AO* 1967, p. 187) reports the discovery on the middle Ingul, at Novaya Rozanovka, of a grave of the 5th century B.C. of particular interest. A Scythian warrior was buried there in a barrow grave clad in scale armour; near his skeleton lay two iron spear-heads, an iron sword and a quiver full of arrows. At Baratovka on the lower Ingulets, south-east of the former grave, 10 barrow graves of the Late Scythian period were excavated by N. G. Elagina and V. G. Petrenko (*AO* 1968, p. 253); burials were mostly in 'catacombs' and the majority were ransacked in antiquity, only very poorly endowed graves of the rank and file Scythians were inviolate. A survey by both authors of the area along the Ingul, where a series of remains of the 6th century B.C. to the 1st century A.D. have been recorded (*KSIIMK* 77, 1959, pp. 21–34) has been mentioned in my previous report (*Bulletin* 8 and 9, p. 127).

Extensive excavations of barrow graves, settlements and earthworks were conducted in the valley of the lower Dnieper and in the area around it. At Lyubimovka near Kakhovka 53 barrow graves were excavated by A. M. Leskov (*AO* 1968, pp.

253–255); they contained about 200 burials ranging from the third millennium B.C. to the 12th century A.D.; a few were of the late Srubnaya culture (9th–8th centuries B.C.), and a considerable number were of the Late Scythian period.

Two volumes of *AP* (IX, 1960 and X, 1961) are devoted to the area of the water-dam built on the Dnieper near Kakhovka: one contains 15 contributions by 17 authors, the other 16 articles by 16 authors; 205 burials were uncovered in 33 mounds, 79 of which were of the Late Scythian period. Report on excavation of 79 barrow graves further to the north-east, in the region of Nikopol, were published by B. N. Grakov (*MIA* 115, 1962, pp. 56–113). 53 of these contained 86 burials of the Late Scythian period. The largest number of barrow graves, 369 mounds with 434 burials, were excavated on the Molochna east of the Dnieper around Melitopol. Of these only 8 burials were of the Late Scythian period, 54 were Sarmatian, and the remaining ones, their bulk, were Late Srubnaya; six reports on these excavations by eight authors, with an introduction and summary of the results of O. I. Terenozhkin (pp. 3–16) were published in *AP* VIII, 1960. No Early Scythian burials were found.

Two 'flat' cemeteries of the Late Scythian period at Skelki in the southern corner of the Dnieper bend, south of Zaporozhe, were described by A. V. Bodianskii (*SA* 1962 (1), pp. 272–276). In a grave of one of these, at Verkhne-Tarasovka on the right bank of the Dnieper, a La Tène iron sword and a bronze La Tène brooch were found, which point to a late date of the burial, probably the 2nd century B.C.

N. G. Elagina (*KSIAM* 89, 1962, pp. 74–76) publishes a preliminary report on investigation of the earthwork at Kaury on the lower Dnieper, which was in existence in the 2nd and 1st centuries B.C. Results of investigation of a series of earthworks in the same region, but especially of the Znamenka earthwork which formed part (the 'Acropolis') of the huge Kamyanka earthwork, and of the earthwork at Gavrillovka, were published by N. N. Pogrebova (*MIA* 64, 1958, pp. 103–247); she also discusses political circumstances in the western part of ancient Scythia during the Late Scythian period, and pays special attention to the Scytho-Thracian relations. Thracian (Getian) elements in the culture of the inhabitants of the earthworks on the lower Dnieper have been pointed out by M. I. Vyazmitina (*MIA* 150, 1969, pp. 119–134) who emphasizes that they are already discernible in that area in the 6th century but particularly since the 2nd century B.C. Silver and copper coins, found loose or forming a hoard, found at the earthwork of Kamyanka, were the theme of a brief article by B. N. Grakov (*KSIAM* 89, 1960, pp. 38–41); the earliest of the coins were of the 4th–3rd centuries B.C., and were either Macedonian or of the Greek colonies.

Two burials of the 5th century found in two barrow graves out of eleven mounds excavated in 1927 in the vicinity of Zhdanov near the coast of the Sea of Azov, half-way between the rivers Dnieper and Don, have been published by E. V. Chernenko (*AK* XXIII, 1970, pp. 176–181). They yielded iron weapons, a bronze mirror, bronze bracelet, a number of bronze arrow-heads, and also a gold ornament and a bronze plaque in the shape of a head of an elk. The burials have been considered as Scythian,

but they seem to have been rather of the Sauromatian culture, as suggested by their character and the style of their inventory.

The country west of the middle Dnieper

The study by V. G. Petrenko, *Pravoberezhie Srednego Pridneprov'ia v V-III vv. do n.e.* (*The Country West of the Middle Dnieper in the 5th-3rd centuries B.C.*, SVOD d-1-4, 1967, 180 pages, 37 full-page figures) is devoted to settlements and burials of the region and the period quoted in the title of the work. The contents of 364 burials from c. 100 sites and their particulars are tabularly arranged on 32 pages, a list is added of all remains arranged in the chronological groups, and burial rites and all main types of grave goods are discussed. In a special article by the same author (*MIA* 96, 1961, pp. 53-102) the character and the reciprocal relations are discussed of the several groups of remains that represent different tribes of the Late Scythian period in the area. The author disproves theories by M. I. Artamonov that the local common people were of Thracian stock, and shares the view of B. N. Grakov and A. I. Terenozhkin according to whom they were the Neurians, a proto-Slavonic people. As already mentioned previously, I have commented on such theories in *Acta Baltico-Slavica* V (1967, pp. 1-17).

According to E. I. Diamand (*MASP* IV, 1962, pp. 203-205) the date of the barrow grave of Martonosha near Kirovograd, in which in 1870 a large Scythian bronze cauldron and Greek vases were found by local peasants, was the late 6th or the 5th century B.C. E. V. Yakovlenko (*AK* XX, 1966, pp. 180-184) publishes the hitherto unpublished notes by V. V. Khvoyko on his excavation, in 1898 and 1901, of the earthwork at Pastyrskoe near Zlatopil, and his description of a few barrow graves that belonged to it but were omitted in the relevant published report by Khvoyko. Subsequently, E. V. Yakovlenko (*AK* XXI, 1968, pp. 175-186), describes the results of investigation of the Pastyrskoe earthwork by M. Iu. Braichevskii in 1955, which established that the earthwork was inhabited during the whole Scythian period (6th to 3rd centuries B.C.). A. I. Terenozhkin deliberates (*NSA*, pp. 211-215) on hitherto unpublished grave goods from three barrow graves excavated by D. Ia. Samokvasov at Ryzhanovka near Zvenigorodka, and concludes that two graves, called 'Cimmerian', were of the second half of the 7th century B.C., and the third one was Early Scythian of the first half of the 6th century B.C.

Further east, near Shpola, two barrow graves were investigated by E. F. Pokrovskaya (*AK* XI, 1957, pp. 148-152). That at Makiivka, dated by her at the end of the 6th century B.C., was ransacked, but a few small gold plaques decorated in the zoomorphic style characteristic of the Sauromatian culture were found there. The other, at Kutsivka, of the first half of the 5th century B.C., was nearly entirely ruined. The same author also discusses (*AK* X, 1957, pp. 65-79) grave goods from a few barrow graves at Kholodnyi Yar near Smila, excavated by A. A. Bobrinskii by the end of the XIX century. They were of the 4th century B.C., and exhibit links with ancient Thracia. E. F. Pokrovskaya (*KSI*AK 12, 1962, pp. 73-81) describes the remains of a sanctuary

of the turn of the 7th and 6th centuries B.C. uncovered at Zhabotin. Inside it was a decorated circular offering place; its decorative patterns correspond with similar phenomena of the same period in the East Mediterranean countries. Several settlements, barrow graves and odd finds, a number of which were of the Scythian Age, from the area of Novo-Georgiivsk near Kremenchug on the steppe and forest-steppe border, have been briefly described by P. M. Hrybenko (*MASP* III, 1960, pp. 155–166).

V. G. Petrenko (*MIA* 113, 1962, pp. 142–151) describes a 'flat' cemetery uncovered at Grishchentsy near Kanev. Several Greek vases of the 6th to 3rd centuries B.C. found in graves indicate their date. Other grave goods were weapons, parts of horse harness and local pottery. The latter shows links with the Zarubintsy pottery of the subsequent period of the area, which implies that no change in the population took place there at the transition to the new period. The same author (*AO* 1967, p. 208) describes investigation of a settlement of the 5th to 3rd centuries B.C. in the same village of Grishchentsy; remains of two huts were uncovered. The Scythian earthwork of the 6th century B.C. at Trakhtemirov, situated on a high plateau within the Dnieper bend north of Kanev, which counts among the most remarkable remains of that period in the Ukraine, was investigated by G. T. Kovpanenko (*AIU*, pp. 103–106), and then by P. P. Tolochko (*AO* 1967, pp. 188 f.). Remains of several huts were uncovered.

Further north, in an Early Scythian barrow grave of the mid-sixth century B.C. at Mala Ofirna near Fastov investigated by E. O. Petrovska (*AK* XXI, 1968, pp. 164–174), traces of timber sepulchral construction were found; the burial was richly endowed, including human offerings. The same author published also a preliminary report on investigation of a settlement at Mala Saltanivka near Vasilkiv, the remains of which were chiefly of the 4th–3rd centuries B.C., but earlier remains, of the 6th–5th centuries B.C., were also frequent. The local ware found in the settlement shows many features in common with the pottery of the Zarubintsy culture of the subsequent period. Another report by the same author (*AIU*, pp. 106–109) gives a brief account of her investigation of the earthwork at Khotiv (Khotov) south of Kiev, of the Early Scythian period (end of the 6th to the 5th centuries B.C.); Greek black varnished ware and sherds of Ionian vases were found. Recently a more detailed and illustrated report on investigation of this earthwork, provided with a plan, was published by E. O. Petrovska (*AK* XXIV, 1970, pp. 129–145) jointly with a report on excavation of a few 'flat' graves of the same period, the 6th–5th centuries B.C., found in the cemetery of the Zarubintsy culture of the turn of the Christian era at Pirohiv in the neighbourhood of the earthwork above. In the same volume, D. Ia. Telegin and V. D. Dyadenko (*AK* XXIV, 1970, pp. 171–178) give an account of the survey and investigation of a few 'open' settlements and two earthworks situated along the left, eastern bank of the middle Dnieper near Cherkassy between the junctions of the Supoy and the Sula, the area which has been recently submerged by an artificial lake. Finally, the article by N. M. Shmaglii (*SA* 1960 (4), pp. 152–155) is devoted to the remains of

the Scythian type of the 7th(?) to 6th—but rather the 6th and 5th centuries B.C.,—from Troyaniv near Zhitomir, found on the site of the 'late Tripolyan', of the Gorodsk culture, settlement; an iron socketed axe of the Lusatian type was found there, although its western parallels have been denied by the author.

The forest-steppe zone east of the Dnieper

I. I. Lyapushkin (*MIA* 104, 1961, 384 pages) devoted a special monograph to the settlements and earthworks in the country between the Dnieper and the Donetz of the period from the 7th century B.C. to the 13th century A.D. In the part of the work dealing with the earliest of these remains, of the Scythian period (pp. 18–145), 125 settlements, 'zolniks' (ashy mounds) and earthworks have been described; they belonged to both groups of Scythian remains distinguished by V. A. Ilinskaya in that country, the larger one called by her the Sula-Donetz group, and the smaller one, the Vorskla group, south of the former around Poltava, in the basin of the Vorskla.

The Scythian culture of that country has been the theme of a series of articles by V. A. Ilinskaya (Illinska in Ukrainian spelling), who lately published a special monograph, *Skify Dneprovskogo Lesostepnogo Levoberezhia (The Scythians of the Forest-steppe country East of the Dnieper*, Kiev 1968, 286 pages including 43 plates) in which the results have been summarized of her many studies. One of these (*AK* XIV, 1962, pp. 52–76) is devoted to timber constructions in barrow graves of the Sula-Donets group; the burial rites of the group have also been discussed. In another one (*AK* XX, 1966; pp. 58–92) the origin of this group has been considered and the conclusion is that it represented the Iranian speaking Scythians. Two other articles by V. A. Ilinskaya (*KSI*AK 11, 1961, pp. 59–63; *AK* XVIII, 1965, pp. 48–76) contain reports on excavation of the earthwork at Basovka near Romny, and in another one (*AK* XXI, 1968, pp. 147–163) a barrow grave of the group at Luki, and grave-goods from a number of barrow-graves of the Early Scythian period excavated by the end of the XIXth century in the region of Kiev are published. According to another report by the same author (*SA* 1963 (3), pp. 152–171), 18 barrow graves excavated near Borispil, east of the Dnieper, were Late Scythian, mostly of the 4th century B.C.

V. A. Ilinskaya, in a paper read at the Warsaw Congress of Slavonic Archaeology in 1965 (*Tezisy*, pp. 26–28; and its enlarged and illustrated version in Russian and English in *MKAS*, pp. 207–228), puts forward the thesis that the formation, in the 6th century B.C., of the Scythian culture in the forest-steppe zone east of the Dnieper was due to the arrival there of Iranian speaking Scythians from the south, from the steppe country. They bordered on the Baltic tribes who lived in the forest zone north of them; and west of them, on the other side of the Dnieper lived the Slavonic tribes. The latter assumption is definitely wrong.

Scythian remains of the Sula-Donets group were also dealt with by other authors. H. O. Sydorenko (*AK* XVI, 1964, pp. 191–194) describes a barrow grave at Kryachkivka on the Uday in which a well armed man was buried in the 5th century B.C.

A few barrow graves excavated in 1926 at Senkivka near Boryspil, published by E. P. Pokrovska (*AK XVIII*, 1965, pp. 139–148), were of the late 5th and 4th centuries B.C. Of a somewhat later date, of the 4th century B.C., were barrow graves excavated in 1961 at Boryspil itself by E. V. Yakovenko (*AK XVIII*, 1965, pp. 150–160). A brief account of the investigation of two earthworks in the province (oblast) of Sula, at Kamenka and Sosenska, was given by A. A. Moruzhenko (*AO* 1968, pp. 275 f.). Finally, D. Ia. Telegin and V. D. Dyadenko (*AK XXIV*, 1970, pp. 171–178) report on their survey and investigation of a number of settlements and earthworks (map on p. 172) situated along the eastern bank of the Dnieper between the junctions of the Supoy and the Sula; they date them too early at the 7th and 6th centuries B.C.

Remains of the Scythian period consisting of barrow graves, settlements and earthworks in the basin of the Donets between Kharkov and Izium, on both sides of the border of the steppe and forest-steppe zones, were dealt with by B. A. Shramko (*AK XIV*, 1962, pp. 135–155), according to whom those in the forest-steppe zone were the archaeological equivalent of the Herodotus' Melanchlaeni. A preliminary report on investigation of one of the largest settlements of the region of the time c. 500 B.C., at Shovkova (Shelkovaya) near Kharkov, was published by the same author (*AK XVI*, 1964, pp. 181–190); in its remains connections are reflected with Greek cities in the south and also with the Iukhnovo and Diakovo cultures of the forest zone. The same author also gave two brief accounts (*AO* 1967, pp. 209 f.; 1968, pp. 273–275) of investigation of the Scythian earthwork at Belsk. Remains of huts of the 5th century B.C. were uncovered there at first, but during the campaign of the following year those of the 7th and 6th centuries were excavated. It has also been established that the earthwork must have been an important centre of handicrafts, and a commercial and political centre. The author thinks that this might have been the ancient city of Gelonus mentioned by Herodotus. Also investigated were seven barrow graves of the 5th and 4th centuries B.C. at Bolshaya Gomolsha, which formed part of a large cemetery consisting of about 1000 mounds. In addition traces of several settlements and earthworks situated along the Sula were recorded.

Scythian remains east of the Dnieper of the other, the Vorskla (Poltava) group of the period 6th to 3rd centuries B.C., were classified and discussed by G. T. Kovpanenko in a small book *Plemena Skifskoho Chasu na Vorskli* (*Tribes of the Scythian Age on the Vorskla*, Kiev 1967, 188 pages, in Ukrainian with a brief summary in Russian). Her conclusions as to the origin and further development of the group are in full agreement with those pronounced in this respect by V. A. Ilinskaya. A brief synopsis of the book has been previously published by the same author in a special article (*AK XIII*, 1961, pp. 62–79). In an earlier article (*AK XI*, 1957, pp. 95–105), she gave account of her excavation of a settlement at Khukhra on the Vorskla near Okhtyrka north of Poltava. Remains found there imply that the settlement was in existence during the transitional period from the Late Bronze Age to the Scythian Age, in the 8th to 6th centuries B.C. In a recent article (*AK XXIV*, 1970, pp. 146–170) G. T. Kovpanenko publishes a report of the late M. Ia. Rudynskii on his excavation in

1923–1946 of 38 barrow graves of a large cemetery at Machukhy near Poltava; all graves were of the 6th century except for five which were of the 5th century B.C.

Scythian barrow graves and earthworks in the country on the Donets, and the material excavated there, have been described by P. D. Liberov (*MIA* 113, 1962, pp. 5–85), who also discusses the burial rites, economy, etc. of the people. Scythian remains were of the period from the 5th to the 3rd centuries B.C., but the author deals also with the earlier ones, of the 8th to 6th centuries B.C. A brief report by the same author (*KSIAM* 83, 1961, pp. 104–109) relates to the excavation of 9 barrow graves (out of a group of c. 150 mounds) at Cheremushny near Kharkov of the period from the 6th to 4th/3rd centuries B.C.

In the volume of *MIA* 113, 1962, mentioned above, A. E. Alikhova (pp. 86–129) and Iu. A. Lipking (pp. 130–141) describe the earthworks of the 6th–5th centuries B.C. in the country on the river Seim in the oblast (province) of Kursk; the Iukhnovo culture to which they belonged was very strongly influenced by the Scythian culture. R. F. Voronina (pp. 130–133 of the same volume) deals with daggers of Scythian type of the 5th–4th centuries B.C. found in the same area.

The country of the Don

The important work, *Pamyatniki Skifskogo Vremeni na Srednem Donu* (*Remains of the Scythian Age on the Middle Don*, SVOD D-1-311. Moscow 1965, 38 pages, 33 tables, one of these coloured) by P. D. Liberov, contains a brief description of all barrow graves, flat cemeteries and of over 60 settlements, including nearly 20 earthworks, investigated in that region; the latter lie mainly in the southern part of the area. The author points to the characteristic features of the local Scythian culture and to its changes; the results of his study have been summarized in a large graph (plate 2) in which the most important finds are allocated to the seven chronological groups distinguished by him. The author's tendency is towards an early dating of the remains and of the groups distinguished. The earliest of these has been dated as the 8th to 6th centuries B.C., the latest one as of the 3rd century B.C. Another important volume entirely devoted to the Scythian remains of the area is *Naselenie Srednego Dona v Skifskoe Vremya* (*The Population of the Middle Don during the Scythian Age*, *MIA* 151, Moscow 1969, 144 pages), which contains 11 articles by 11 authors. The leading ones are two first articles by P. D. Liberov (pp. 5–26; 27–37) in which he attributes to the Gelones and Budini of Herodotus the Scythian archaeological remains of the area, and places the Syrmatae in the country between the Don and the Donets; he considers the Syrmatae as the southernmost branch of the Budini who, according to him, were of Finnish stock, a theory that does not take into account migrations of the Sauromatian-Sarmatian tribes at the turn of the 5th and 4th centuries B.C. He also maintains that the area encircled by the five earthworks situated close to each other at Voloshino near Ostrogozhsk, south of Voronezh was most likely the ancient wooden city of Gelonus mentioned by Herodotus (IV, 108).

Reports of the excavation of barrow graves of the Scythian Age, but also of earlier periods, at Mastiugino, south of Voronezh, in 1958 and 1959–1960, were published by P. D. Liberov in two articles (*SA* 1960 (3), pp. 162–170; 1961 (3), pp. 152–165), who also discusses their relation to the earthworks of Voloshino situated nearby. In 1961, four barrow graves with cremations of the Scythian Age were excavated by V. A. Bashilov (*SA* 1963 (2), pp. 151–157). The same author also describes (*SA* 1966 (2), pp. 304–309) a Greek hydria of the early 5th century B.C. found in one of the Mastiugino burials, and a silver vase from another burial there, of the 7th century B.C., was dealt with by A. P. Mantsevich (*AAASH IX*, 1959, pp. 315–333).

A. I. Puzikova (*KSIAM* 102, 1964, pp. 24–33) reports on excavations in 1958 of a barrow grave of the 4th–3rd centuries B.C. at the cemetery of Russkaya Trostianka on the Don, south of Mastiugino, and of a large earthwork there of the same period (*SA* 1962 (4), pp. 219–224). The same author (*MIA* 151, 1969, pp. 41–81) also gives account of surveying and excavation of a series of settlements and earthworks of the Scythian period in the country on the middle Don, which were all abandoned and destroyed in the 2nd century B.C. In 1964 and 1965, she investigated ten barrow graves at Durovka, at a site called ‘Khutor Gorodishche’, oblast of Belgorod, south of Kursk (*KSIAM* 107, 1966, pp. 80–91; *AO* 1965, pp. 91–93; *MIA* 151, 1969, pp. 82–95); all were of the 5th–3rd centuries B.C., and of the same type as those excavated at Mastiugino and at Voronezh (the ‘Chastye Kurgany’). They were mostly richly furnished but many were ransacked in antiquity. Gold ornaments and Greek imported objects were found. Finally, A. P. Mantsevich (*SA* 1958 (2), pp. 196–202; *Archaeologiai Értesítő* 88, Budapest 1961, pp. 77–81) deliberates on a silver bull-head found in a large barrow grave at Alexeevka on the Kalitva, a left tributary of the Donets, and points to its Assyrian and Achaemenid parallels; she concludes that the burial was of the early 6th century B.C.

Of special interest are objects from a ploughed up barrow grave at Antipovka near Losev, south-west of Voronezh, described by I. I. Gushchina (*SA* 1961 (2), pp. 241–246). Iron bits, cheek-pieces, silver bridle decorations and a decorated La Tène Italic, or Italo-Greek bronze helmet were found there; the burial was of the 2nd century, or the early 1st century B.C.

Very brief reports of investigation of the earthwork of Elisavetovskoe in the delta of the Don in 1965 and 1966 were published by Ia. V. Domanskii (*AO* 1965, pp. 108 ff.) and jointly with I. B. Brashinskii (*AO* 1966, pp. 80 ff.), and reports of its investigation in 1967 and 1968, by I. B. Brashinskii (*AO* 1967, pp. 88 f.; 1969, pp. 111 f.). It has been established that the settlement was in existence from the 5th to the 3rd centuries B.C., and that it was a major centre of Greek commerce with the Scythians. The same author (*KSIAM* 124, 1970, pp. 12–18) discusses Greek imports to the settlement based on articles of Greek origin, mainly wine and oil amphorae, found in the earthwork itself and in its cemetery, of the period from the 5th to 3rd centuries B.C.

A large barrow grave cemetery at Khutor Gorodishche belonged to the Elisavetovskoe earthwork. 144 mounds of the cemetery were excavated at the turn of the XIXth–XXth centuries. Some of these were recently re-examined as reported by V. P. Shilov in a series of brief articles, the first of these in *Izvestiya Rostovskogo Oblastnogo Muzeya Kraevedeniya* (No. 1/3. Rostov-on-Don 1959, pp. 13–28). Of particular interest was the richly furnished barrow grave 8 of the group called 'The Five Brothers' (*SA* 1961 (1), pp. 150–168; *Arkheologicheskie Raskopki na Donu*, Rostov-on-Don 1962, pp. 52–69) of the 4th century B.C.; its tomb was of Greek type, and its inventory was very similar to that from the Chertomlyk barrow grave in the Ukraine. Fourteen unbroken wine and oil amphorae found in this grave were studied by I. B. Brashinskii (*SA* 1961 (3), pp. 178–187), according to whom nine of these were Heracleian of the second half of the 4th century B.C. The barrow must have been from the last decade of that century. Another burial of interest was the 'Ushakov' barrow grave (*SA* 1966 (1), pp. 174–191), originally excavated by I. I. Ushakov in 1901, the date of which has been established by V. P. Shilov as of the 4th century B.C. Investigation of the cemetery in the years 1965–1967 were conducted by I. B. Brashinskii jointly with A. I. Demchenko (*AO* 1967, p. 89; *KSIAM* 116, 1969, pp. 111–117); all burials were of the period from the late 5th to 3rd centuries B.C., but mainly of the 4th century.

A settlement of an earlier period was investigated at Liventsovka on the Don, on the outskirts of Rostov, by S. N. Bratchenko (*AK* XXII, 1969, pp. 210–231). Five occupation layers have been distinguished. The earliest was Late Neolithic; the latest (the 5th), the upper layer, was of the turn of the second and first millennia B.C., of the Late Srubnaya, pre-Scythian period. A 'flat' cemetery with burials under 'stone covers' and 'cromlechs' (graves encircled by a stone ring) belonged to it.

Six barrow graves excavated in Rostov-on-Don by A. I. Demchenko (*AO* 1968, pp. 103 f.) contained 56 burials at least one of which was of the 4th century B.C. Further east, at Konstantinovskii on the Don, a flat grave in a stone circle was discovered within the area of a Copper Age settlement; it yielded a bronze tip of a sheath and a clay vessel, but the most interesting was a triangular bone plaque, or point, the surface of which was covered with at least ten engraved figures of deer (stags). V. A. Kiyashko (*AO* 1968, pp. 105 f.) who excavated the grave, dated it as the 8th–7th century B.C. However, the style of the figures closely related to the Siberian style of the Scythian period, and at least one elk figure, suggest a later period, possibly the 5th century B.C. The same author, jointly with V. E. Maksimenko (*AO* 1967, pp. 77–79) reports on investigation of a pre-Scythian barrow grave, of the 8th–7th centuries B.C., at Verkhne-Podpolnyi, on the southern side of the Don west of the junction of the Manych; a stone battle-axe and a two-edged bronze arrow-head were found in the grave. Two barrow graves excavated at Koysug in the delta of the Don by V. E. Maksimenko (*AO* 1967, pp. 79 f.; 1968, pp. 84 f.) contained 45 burials of the period from the 3rd–2nd centuries B.C. to the 2nd–3rd centuries A.D. In the same area a settlement protected by trenches dug around it, was investigated at

Safyanovo by E. S. Sharafutdinova (*AO* 1967, pp. 80 f.). It was of the final stage of the pre-Scythian age, and was co-eval with the well known earthwork of Kobyakovo situated nearby. A 'celt', a bronze socketed axe of the 'Cimmerian' type proper to the Ukraine west of the Dnieper, was found there.

The Crimea

Books and articles dealing with the Crimean remains of the early first millennium B.C. have already been mentioned in my previous report (*Bulletin* 8 and 9, pp. 128 f.). Remains of the Scythian Age were likewise investigated all over the country, but mainly very brief reports were published of these. Those conducted in 1967 in the Crimea were summarized by P. P. Tolochko (*AO* 1967, pp. 186–195) jointly with investigations in other parts of the Ukraine. The results of investigation of settlements in the north-west Crimea have been briefly reported by A. N. Shcheglov (*KSIAM* 124, 1970, p. 19–24).

Barrow graves have been investigated chiefly in the peripheries of the steppe country. Five Scythian barrow graves of the end of the 4th and the 3rd century B.C. at Zaozerne near Eupatoria were excavated by A. A. Konovalov (*AO* 1968, pp. 294 f.); all were ransacked in antiquity. A number of Scythian barrow graves were investigated on the southern border of the steppe, in the region of Simferopol, some of these reported by A. A. Shchepinskii (*AO* 1968, pp. 250).

A description of the objects found in a series of Scythian barrow graves in the region of Simferopol excavated mainly by the end of the XIXth century, has been published by T. N. Troitskaya (*IADK*, pp. 174–190); they were of two periods, either of the 5th to 3rd centuries B.C., or of the 2/1st century B.C. to 1/2nd century A.D. The author emphasizes that in that area the Scythian culture survived till the end of the 2nd century A.D. A special study by A. P. Mantsevich (*IADK*, pp. 155–173) is devoted to the description of the richly endowed barrow grave on the river Salgir near Simferopol, called the 'Talaevskii' barrow grave, excavated in the XIXth century; a chief, warrior, was buried there. Its toreutic, including a rhyton made of deer antler set in silver, points to the 3rd century B.C. as the date of the burial.

Several Scythian remains of the period from the 4th–3rd centuries B.C. to the 3rd–4th centuries A.D. have been recorded by A. A. Shchepinskii (*IADK*, pp. 314–321) in the valley of the Salgir in the region of Simferopol. He mentions the earthwork of Zmenskoe, built in the 4th–3rd century B.C., the settlement at Nizhne-Partizany, and barrow graves at Konstantinovka and Fontany. A. P. Pripuskov (*IADK*, pp. 327–329) points out that a feature characteristic of all Scythian earthworks in the Crimea is a layer, a substratum, of ashes ('zolnik') found beneath almost all buildings and constructions of that period. T. N. Vysotskaya (*SA* 1968 (1), pp. 185–193) points out that the Scythian earthworks in the Crimea were constructed mainly in the 3rd century B.C., and some in the 2nd or 1st centuries B.C. They all belonged to the Late Scythian culture, similar to those of the same period on the lower Dnieper. Their

culture reflects a strong influence of the Sarmatian culture. They were for the most part destroyed in the 3rd century A.D., which was undoubtedly the outcome of the Gothic conquest of the country.

A few reports have been published of investigation of earthworks situated on the border of the steppe and the Crimean foothills. One of the largest of these, built in the 2nd century B.C., at Pozhaskoe (formerly Bulganak) in the region of Simferopol, was investigated by P. N. Shults (*AIU*, pp. 114–119, with a folded plan). Another one, at Alma-Kermen, situated further to the south, nearer to Bakhchisaray on the river Alma, was investigated by T. N. Vysotskaya (*KSIK* 11, 1961, pp. 75–79; *AK* XXIV, 1970, pp. 179–193), who also devoted a special article to the study of its hand-made pottery (*AK* XX, 1966, pp. 185–195). The same author (*SA* 1968 (1), pp. 185–193) discusses a number of Late Scythian earthworks in the south-western corner of the Crimea, built in the 3rd–2nd centuries B.C., which ceased to exist in the 3rd–4th centuries A.D., destroyed by the Goths. A map on p. 186 shows the geographic diffusion of these earthworks. The latest built in the south of the Crimea was the earthwork of Dzhalmon, situated 12 km. south-east of Simferopol, investigated by V. C. Drachuk (*KSIK* 9, 1960, pp. 77 ff.). It was constructed in the 1st century A.D. and destroyed in the 4th century A.D.

The most important, however, was the earthwork situated on the outskirts of Simferopol, which represents the ruins of the ancient city of Scythian Neapolis, the seat of the Crimean Scythian kings. A very good and comprehensive review of investigation of the earthwork in 1945–1950, and its most important results, was given by P. N. Shults (*IADK*, pp. 61–93). Since its publication many more articles appeared dealing with the archaeological remains of the city. However, they almost entirely belong to the subsequent period, and will therefore be dealt with in my subsequent report.

In the Crimean mountains in the southern part of the country lived the ancient Taurians. Their Kizil-Koba culture of the early first millennium B.C. was succeeded by the Taurian culture, the remains of which were investigated and published in a series of articles. Kh. I. Kris (*SA* 1961 (4), pp. 66–77), in the article already mentioned in my former report (*Bulletin* 8 and 9, p. 128) discusses the character of the Kizil-Koba culture and its chronology. He concludes, contrary to the views of some other scholars, that the Kizil-Koba culture was in existence from the 8th to the 4th centuries B.C. Two periods in its development may be distinguished, the earlier one from the 8th century to the arrival of the Scythians in the Crimea in the 6th century B.C., and the later period, which lasted till the 4th century B.C., the time at which the Scythian earthworks began to be constructed. The so-called Taurian culture which followed then was not Taurian from the racial point of view.

The report by G. A. Bonch-Osmolovskii who in 1924–1925 excavated a series of 'early Taurian' burials at Chuyuncha and Karly-Kaya in the Crimean highland, was published by A. M. Leskov (*ASE* 2, 1961, pp. 104–113), who described in detail all the grave goods found there, at present in the Hermitage Museum in Leningrad;

he dated the burials as the late 7th and early 6th centuries B.C. A 'Taurian' settlement at Skalistoe near Simferopol was recently investigated by A. A. Shchepinskii (*AO* 1968, p. 250), who also mentions two Taurian slab-cist graves discovered at Pionerskoe and Tash-Dzhorgon in the same region.

A number of 'Taurian' slab-cist graves were excavated by A. M. Leskov (*KSIAM* 10, 1960, pp. 70-77) in the Baydarskaya valley and on the Black Sea coast in the south-western corner of the Crimea. The same author also publishes (*MASP* III, 1960, pp. 222-227) grave goods from similar graves excavated in the same region in the XIXth century; he dates (*KSIAM* 9, 1959, pp. 156-165) the earliest of these as the late 6th and the 5th centuries B.C., and the latest ones as the 4th-3rd centuries B.C. There were considerable changes in the content of graves of the two stages. A more detailed description of goods found in Taurian slab-cists at Gaspra on the Black Sea coast has been given by Kh. I. Kris (*KSIAM* 107, pp. 75-79), who in another article (*KSIAM* 112, 1967, pp. 23-30) discusses all Crimean slab-cist burials. He concludes that apart from the chronological division of these burials established by A. M. Leskov, also their division into three distinct regional groups has to be taken into account; there are differences in the construction of their graves, and also other features differ. Finally, O. D. Dashevskaya (*SA* 1958 (3), pp. 194-197) published a brief description of an early Taurian settlement of the 6th century B.C. investigated by her at Simferopol.

Some features of the late Taurian pottery of the 4th-3rd centuries B.C. have been discussed by O. D. Dashevskaya (*SA* 1963 (4), pp. 205-210), and E. I. Solomonik (*AP* XI, 1962, pp. 153-157) deliberates on the meaning of the term 'Tauro-Scythian', often applied by ancient authors, and concludes that during the first centuries of the Christian era it denoted the Taurians of the Crimean mountains who were under a strong influence of the Scythian culture, and possibly had also some Scythian admixture.

Several Scythian barrow graves, and settlements, were investigated in the eastern part of the Crimea, in the steppe at the base of the Kerch peninsula, where they often appear within the area of the Bosporan Kingdom, the remains of which of the period will be dealt with in my next report. P. P. Tolochko (*AO* 1967, p. 188) and E. V. Yakovlenko (*AIU*, pp. 35-38) report that about 20 barrow graves were investigated in that region, at Frontovoe, Bagerovo near Kerch and in other sites, all of the period 5th to 3rd centuries B.C. They were also mentioned by A. M. Leskov (*AIU*, pp. 30-35), who plotted all the relevant sites on a sketch map published in the article; the map is of importance because of the wholesale change of Crimean place names after the deportation of the indigenous Tartar population. In another article, the same author (*SA* 1961 (1), pp. 259-266) describes five slab-cist graves of the 6th-3rd centuries B.C., excavated at Rybnoe in the Kerch Peninsula. A flat cemetery excavated at Frontovoe has been reported by V. N. Korpuseva (*AIU*, pp. 38-41) and then described by O. V. Tsvek (*AK* XXI, 1968, pp. 199-205); it consisted of about 100 graves which were of two consecutive periods. The earlier ones were inhumations in catacombs of the 5th to 3rd centuries B.C.; the later burials were cremations of

the Sarmatian period, of the 2nd to 3rd centuries A.D. Burial ritual, type of graves and imported objects imply close connections with the Bosporan Kingdom. V. I. Pruglo (*KSAMO* 1961, pp. 72–78) describes gold ornaments from a recently discovered richly endowed slab-cist grave in a large barrow grave investigated by N. P. Kondakov in 1882, at Baksy, recently renamed Glazovka, near Kerch. Of interest are gold plaques in the shape of lions heads, evidently an Iranian element in the North Pontic toreutic. The burial was of the late 5th or early 4th century B.C. E. V. Iakovlenko (*KSIAM* 124, 1970, pp. 54–60) publishes parts of horse bridle from another Scythian barrow grave of the 5th century B.C., excavated in 1862 at Ak-Burun near Nimphaea in the southernmost part of the Kerch Bay. A Scythian princely burial of the 5th century B.C. has been investigated in a barrow grave at Illichevo in eastern Crimea by A. M. Leskov (*SA* 1968 (1), pp. 158–165). Gold ornaments in the archaic Scythian animal style were found there. The same author (*AIU*, pp. 32 ff.) also reports on investigation at Kirovo in the steppe country west of Kerch of a settlement of the early first millennium B.C. Late Srubnaya pottery of Belozerk type was found there. He thinks that the pottery attests to the presence of the Cimmerians in the Crimea, and is also of the opinion that investigation of graves and settlements in the eastern part of the Crimea indicate that prior to the Greek colonisation, the area was inhabited by the Kemi-Oba tribes proper to the Crimean Mountains.

The North Caucasus

The literature concerned with the first millennium B.C. in the Caucasus was for the most part reviewed in my previous report (*Bulletin* 8 and 9, pp. 131–133). There remain, however, a number of books and articles dealing with the Scythian remains and new publications, and also articles which have been omitted or overlooked, which will all be dealt with here.

A reconstruction of the history of the Sindo-Maeotian Kingdom in the North-West Caucasus in the 5th century B.C. has been attempted by E. Berzin (*VDI* 1958 (1), pp. 124–129), who based his investigation on the study of Bosporan and local Sindian coinage. A. K. Korovina (*SA* 1957 (2), pp. 174 ff.) devoted her article to a group of seven very large barrow graves in the Taman Peninsula and on the lower Kuban river, called 'The Semibratnye' (Seven Brothers) Kurgany, excavated in 1875–1878. She publishes their plans, discusses their grave goods mostly of Greek origin, and their date. The earlier ones were of the second half of the 5th century, the latest of the 4th century B.C. She considers as Sindians the persons buried there.

A brief account of investigation of the cemetery consisting of over 100 burials of the 4th–3rd centuries B.C. at Stanitsa Elisavetinskaya on the river Kuban, was given by N. V. Anfimov (*AO* 1966, pp. 71–73) jointly with a report on another cemetery in the same area of the period from the 2nd century B.C. to the 1st century A.D.; both cemeteries were Maeotian. Two Maeoto-Sarmatian earthworks situated close to each other at Khutor Druzhba on the river Kuban near Cherkessk, were investigated by E. P. Alekseeva (*AO* 1968, pp. 107 f.); both were of the period from the

5th–4th century B.C. to the 2nd–3rd century A.D. A number of grave goods from a flat cemetery of the 5th–3rd centuries B.C. at Stanitsa Voznesenskaya, situated on the Chamlyk, between the rivers Laba and Urup, have been described by I. I. Gushchina (SA 1970 (1), pp. 241–244). Further south, at Gelendzik, 27 slab-cist graves under mounds were investigated by I. I. Akhmatov (SA 1961 (1), pp. 139–149); they formed six groups and lay within a distance of 350–500 m. from the sea coast. Most were of the 6th century but a few were up to the 4th century B.C. A brief report by V. B. Vinogradov and four other authors (AO 1967, pp. 65–69) is devoted mainly to the survey of several concentrations of ‘dolmens’, stone slab-cist graves, in the highland part of the area; 80 to 400 ‘dolmens’ have been accounted for in some of the concentrations, and some of these were under mounds. A. A. Nechitaylo (AO 1967, pp. 76 f.) describes a richly furnished slab-cist grave discovered at Dombay near the source of the river Kuban. It formed part of a larger cemetery, and its grave goods exhibit many similarities to those typical of the Koban culture. Finally, an iron sword found near Stavropol on the river Mamayka, described by T. M. Minaeva (SA 1958 (1), pp. 230 f.) deserves mention; it is shaped like a long dagger and may be considered as one of the earliest Scythian swords of the transitional period from the Bronze Age to the Early Iron Age.

E. I. Krupnov (KSIIMK 78, 1960, pp. 107–118) devoted his article to new archaeological discoveries in the North-Eastern Caucasus and pays special attention to the large cemetery (167 burials) at Lugovoe-Muzhichi in North Ossetia, and to a few similar ones in the area. Investigation of the cemetery and settlement of Serzhen-Iurt in Checheno-Ingushetia, mentioned in my previous report (*Bulletin* 8 and 9, p. 133), has also been reported by N. Ia. Merpert (KSIAM 88, 1962, pp. 33–44) and recently by V. I. Kozenkova (AO 1966, pp. 59 f.; SA 1969 (3), pp. 171–183). Moreover, R. M. Munchaev (KSIAM 84, 1961, pp. 56–62), besides dealing with the above site, gives also a preliminary report on investigation of the cemetery of the 5th–4th centuries B.C. at Beti-Mokhk, and of barrow grave cemeteries of the Scythian period, the 6th–5th centuries B.C., at Starye-Atagi and Goyty, and—jointly with V. I. Markovin (KSIAM 100, 1965, pp. 40–49)—also of the ‘flat’ cemetery with burials in slab-cists at Zandak-Dagbash, of the Late Koban period. The Zandak cemetery has been previously described by V. I. Markovin (KSIAM 98, 1964, pp. 84 ff.).

The book *Drevnosti Checheno-Ingushetii* (*The Antiquities of Checheno-Ingushetia*, Moscow 1963, 280 pages) contains seven articles dealing with the remains of various periods in the north-east Caucasus. Only two of these are of concern to us here, one by E. I. Krupnov and N. Ia. Merpert (pp. 9–48) on excavation of barrow graves (kurgans) at Stanitsa Mekenskaya of the 4th to 2nd centuries B.C.; and the other by P. M. Munchaev (pp. 139–211) on investigation of various remains of the 6th–5th centuries B.C. at Lugovoe-Muzhichi, mentioned above. In Scythian barrow graves of the 6th–5th centuries B.C. at Goyty in the same area, several objects decorated in the Scythian animal style were found by V. I. Markovin (SA 1965 (2), pp. 160–175). Two recent finds from the same area have been reported by V. B. Vinogradov

(*SA* 1970 (3), pp. 202–208). One of these is a bronze hoard found at Mayiurtup, consisting of bracelets of three types, a spiral pendant and a small ring, of the period between the 9th and 7th centuries B.C.; the hoard must have been the property of a founder-master. The other find was a richly furnished burial of a warrior (contracted skeleton) uncovered at Shali in the same region. The equipment consisted of iron weapons a brooch, bracelet, three clay vessels and a decorated bronze belt-buckle of a special north-east Caucasian type in the shape of a flying eagle. The equipment and burial ritual display a mixture of local, Late Koban and Scytho-Sarmatian elements.

At Ialkhoy-Mokhk and Kuren-Benoy in the Chechen country, two cemeteries of the 6th to 4th centuries B.C. were investigated by E. I. Krupnov and others (*AO* 1966, pp. 63 f.); they belonged to a 'Scythoid' culture of the indigenous population. A flat cemetery at Groznyi (Khankalskoe Ushcheli) of the period from the 5th century B.C. to the 1st century A.D., of the Koban-Kayakent type, and another one of the late Koban period with several slab-cist graves, were investigated by M. Kh. Bagaev and two other scholars (*AO* 1968, pp. 85–88). V. M. Kotovich (*AO* 1968, pp. 92–95) described petroglyphs investigated by him at Verkhnee Lobko-Makhi in Dagestan; among these were drawings of animal figures in the Scythian style, which put their date around the turn of the Christian era.

The book *Ranniy Zheleznyi Vek v Dagestane* (*Early Iron Age in Dagestan*, Makhachkala 1967, 176 pages) by M. I. Pikul was not available in London; its review by V. B. Vinogradov appeared in *SA* (1969 (2), pp. 288–291).

Transcaucasia

Books and articles published recently and those omitted in my previous report (*Bulletin* 8 and 9, pp. 133–136) will be discussed here. First is the article by L. I. Lavrov (*SA* 1965 (3), pp. 223–225) who points out that the passage along the Black Sea coast from the North Caucasus to Transcaucasia was not easy in the past. He thinks, therefore, that the Cimmerians might have used a maritime transport when moving southwards, which does not seem right; the sea level at that time was lower than it is at present, thus the route along the sea coast must have been wider and easier to pass (see D. Ia. Berenbejn (*SA* 1959 (4), pp. 42–52)).

The book *Zodchestvo Gorodishcha Urbnisi* (*The Architecture of the Earthwork of Urbnisi*, Tbilisi 1965, 160 pages, 48 plates) by P. P. Zakaraya, distinguishes several periods in the existence of this fortress. The earliest architectonic complex was of the 4th–3rd centuries B.C.; the fortress was destroyed by the Arabs in the 8th century A.D. Another fortified site was Van, a Greek town with an acropolis on the Black Sea coast in Colchis. Some of its structures of the 7th to 3rd centuries B.C., and also some later ones destroyed in the 1st century B.C., were investigated, as briefly reported by O. D. Lordkipanidze and R. V. Puturidze (*AO* 1967, pp. 302 f.). Of interest are two offering, or sacred, sites at Meli-Gele, reported by K. N. Pitskhelauri (*AO* 1968, pp. 299–302), in which a large number of various objects were found offered

to the deities. The first of the sites (I) was of the second half of the second millennium B.C., and the second one (II) was of the 9th to 7th centuries B.C.

Husbandry, stock-rearing and fishing in ancient Colchis were discussed by G. A. Lordkipanidze (*SA* 1967 (1), pp. 27–39). Mention should also be made of the article by the same author (in English), *Colchis in the Early Antique Period and her Relations with the Greek World* (*Archeologia* XIX, Warszawa 1968, pp. 15–44), in which the results of recent excavations in western Georgia have been briefly described, and the background of the origin of the myth of the Argonauts and its popularity in Greece in the 6th, and then in the 5th–4th centuries B.C. discussed.

Of importance are the results of recent (1967 and 1968) investigation of the large cemetery of the Koban culture at Tli in South Ossetia, a village 2000 m. above the sea level, reported by B. V. Tekhov (*AO* 1967, pp. 295–298; 1968, pp. 393–395). His earlier accounts of excavation of this cemetery were already mentioned in my previous report (*Bulletin* 8 and 9, p. 132). About 60 flat and slab-cist graves were investigated, some with burials in three superimposed layers. The earliest burials were of the mid-second millennium, the latest of the beginning of the 5th century B.C. Of interest are decorated bronze belts (10th to 8th centuries B.C.), brooches, ear-pendants, daggers of 'akinakes' type etc. (8th to 6th centuries B.C.), excavated in these graves. The same author (*SA* 1969 (4), pp. 49–61) deals also with open-work bronze belt-buckles shaped as very stylized stags and horses, that appear in Georgia in the Late Koban period, and in the 3rd century B.C. in South Ossetia, and were current up to the 2nd century A.D.

The period under review in Armenia has been dealt with in the book already mentioned in my report (*Bulletin* 7, p. 66), *Armeniya v Epokhu Bronzy i Rannego Zheleza* (*Armenia during the Bronze Age and Early Iron Age*, Erevan 1964, 312 pages) by A. A. Martirosyan. Its chapter III (pp. 191–305) is devoted to the remains of the Iron Age and to those of the Urartian Kingdom. The book on Urartu in Russian, and its shortened version in English, *Urartu. The Kingdom of Van and its Art* (London 1967, Evelyn, Adams & Mackay. 111 pages, 30 plates) by B. B. Piotrovskii should also be mentioned here, although both have been quoted in my previous report (*Bulletin* 8 and 9, p. 135). In the English edition the emphasis is put chiefly on the Urartian art.

Some special features of the material culture of Armenia, and Transcaucasia in general, in the 5th–4th centuries B.C., and the close connections of the country with Achaemenid Persia have been pointed out and discussed by G. A. Tiratsyan (*SA* 1964 (3), pp. 64–78).

A. A. Martirosyan (*AO* 1967, pp. 310–313) briefly reports on investigations in various parts of Armenia. Among these is a settlement at Dzhraovit on the slopes of Metsamor Hill (the Ararat Plain) of the early first millennium B.C.; its earliest layers go back to the 2nd and even 3rd millennium B.C., and the latest find was an Urartian burial of the 8th century B.C. Brief summaries of the results of excavation of Urartian fortresses at Argishtikhinili (Armavir) and Erebuni, of the discovery

of a 'Cyclopaean' fortress with a temple-like construction of the 6th–5th centuries B.C. at Enokavan, and of a cemetery there of the 9th–5th centuries B.C., have likewise been mentioned in the above report. Results of investigation of the ancient fortress of Armavir in the Ararat valley have been reported by B. N. Arakelyan (*AO* 1967, pp. 313–315); in 1966–1967 remains of the Hellenistic and Urartian periods were found; mention has also been made of the results obtained at Garni.

The results of investigations in Azerbaijan in 1956–1960 have been published in the volume of *MIA* 125 (1965, 230 pages, 11 articles by 5 authors). Of importance is the description by A. A. Yessen (pp. 22–32) of a richly furnished princely burial of the early Scythian period (c. 650–600 B.C.) in a barrow grave near Kyamil-Tepe, called 'Malyi (small) Kurgan'; decorated horse harness, phalerae, of the type known from the cemetery of Musi-Ieri, were found there. Also investigated was the settlement situated near the barrow grave above, at Uch-Tepe, in the Milskii Steppe. According to A. A. Yessen (*KSIIMK* 78, 1960, pp. 99–106), at Kara Tepe (pp. 100 ff.) remains of ancient stone constructions of the first millennium B.C. have been found. The lower layers of the site were of the 7th–6th centuries B.C., but remains of later periods prevailed.

A settlement of the 3rd century B.C., which lasted till the early centuries A.D., was excavated by S. M. Kazieb and I. A. Babaev (*AO* 1967, pp. 317–319; 1968, pp. 398 f.) at Chukhur-Kabala; remains of a communal building built of bricks were uncovered, and a hoard of Greek-Bactrian and other coins of the 4th to 2nd centuries B.C. was found there. The site must have been an important commercial centre which perished in conflagration in the 2nd century A.D. The earthwork of Amaras at Soso in the Karabakh Mountains, one of the earliest centres of early mediaeval Albania, was investigated by R. B. Geyushev (*AO* 1968, pp. 399 f.). It had three well distinguishable layers of occupation which jointly attest to the existence of the settlement from the 4th–3rd centuries B.C. to the 18th century A.D. Graves—flat, or stone slab-cists—of its cemetery situated nearby were of the time from the late first millennium B.C. to the beginning of the first millennium A.D.

The Forest zone

The relevant literature was for the most part reviewed by me in *Bulletin* 8 and 9 (pp. 137 ff.). There remain, however, a few new publications and also those dealing with the second half of the first millennium B.C.

First, the article by J. Graudonis (*Arheologija un Etnografija* VIII, Riga 1968, pp. 31–51), in Latvian with a summary in Russian should be mentioned. The connections of the population of Latvia during the Early Metal Age, the time from the mid-second millennium B.C. to the first century A.D., have been discussed against a wide background comprising the whole of Eastern Europe north of the line running approximately from Lithuania eastwards via the Oka, Kazan to the Middle Urals. Four maps showing the extent of the many cultures of that huge area during the subsequent periods illustrate the points raised by the author. Another article in the

same periodical by I. Cimermane (pp. 53–64) is devoted to the ‘textile’ pottery of Latvia and its relation to the Diakovo culture of the northern part of Russia. Noteworthy is also the thorough but positive review by V. V. Sedov (*SA* 1970 (3), pp. 272–276) of the book *Latviya v Epokhu Pozdney Bronzy i Rannego Zheleza (Latvia in the Late Bronze Age and Early Iron Age, Riga 1967)* quoted in my report in *Bulletin* 8 and 9 (p. 137).

The theme of a number of articles was the Milograd culture which extended over large parts of Byelorussia, northern Ukraine and Volhynia. E. A. Symonovich (*KSIIMK* 77, 1959, pp. 70–76) published a preliminary report on excavation of the earthwork of Kolochin I near Gomel in South Byelorussia. Its lower layer was pre-Milograd, and the main one was of the late stage of the culture. O. N. Melnikovskaya, in one of her several articles (*SA* 1962 (1), pp. 163–172) described 70 cremations and a few inhumation burials of the cemetery at Goroshkov on the Dnieper in South Byelorussia; they were of the 6th–5th centuries B.C., but in a few graves articles of the 4th–3rd centuries B.C. were found characteristic of the later stage of the culture. The cemetery lay near an earthwork close to which was another cemetery of the same period, which, however, belonged to the Zarubintsy culture. The two populations lived there side by side. The reciprocal relations between these two co-eval cultures in South Byelorussia have been discussed by the same author in another article (*SA* 1963 (1), pp. 32–44). She also gives account (*KSIAM* 94, 1963, pp. 9–19) of her investigations in eastern Byelorussia which aimed at establishment of the eastern boundary of the Milograd culture. About 20 sites were recorded in East Byelorussia, but about 150 sites—settlements, earthworks, flat and barrow grave cemeteries—in the south of the country.

The earliest remains in the area south of the Pripet were of the 6th, but mainly of the 5th–4th centuries B.C.; north of that river they appeared only in the subsequent period. The latest remains in most parts of the country were of the 2nd–1st centuries B.C., and in some areas the culture survived till the 1st century A.D. The origin of the culture and its relation to the Zarubintsy culture have also been discussed. Scythian weapons imply a strong Scythian influence which reached much further to the north, as indicated by a Scythian iron sword of the 6th century B.C. found in the region of Pskov, reported by A. P. Smirnov (*SA* 1966 (3), p. 227). A more detailed study of the culture has been published by O. N. Melnikovskaya in her book *Plemena Iuzhnoy Belorussii v rannem zhelezhnom veke (Tribes of Southern Byelorussia in the Early Iron Age, Moscow 1967, 195 pages)*. She distinguishes three periods in the development of the culture, the 6th–4th centuries, the 3rd–2nd centuries, and the 1st century B.C. to the 1st century A.D. She considers the culture as the archaeological equivalent of the Neuri of Herodotus, which seems to be right, but she wrongly attributed it to the Early Slavs; the people were rather a branch of the Baltic-speaking peoples who were later assimilated by the Slavs. A critical review of this work has been published by V. V. Sedov (*SA* 1970 (2), pp. 265–272). The Milograd sites in Polesia have been described and discussed by Iu. V. Kukharenko in *Pamyatniki Zheleznogo Veka*

na Territorii Polesya (Remains of the Iron Age in Polesia, SVOD D-1-29, Moscow 1961). The same author also deliberates (*SA* 1960 (1), pp. 289–300) on the reciprocal relations between the various cultures of the second half of the first millennium B.C. in the north and west of the Ukraine and in Southern Byelorussia, and in particular on the relationship between the Milograd and the Zarubintsy cultures in the 2nd and 1st centuries B.C., which will be dealt with in my next report.

Of importance is the issue of *SVOD, Drevnosti Zheleznogo Veka v Mezhdurechie Desny i Dnepra (Antiquities of the Iron Age in the Country between the Rivers Desna and Dnieper, D-1-12. Moscow 1962, 72 pages, 12 plates, a large map and a chronological graph)* divided into two parts. Part I (pp. 6–48) by 9 authors, contains a list of all sites with their brief description and the relevant bibliography; all sites are pin-pointed on a large map. In Part II, by G. F. Solovieva (pp. 49–72), the different burial rites of the period which mark different cultural groups of the country, have been described and the relevant literature quoted. The geographical extent of the groups has been shown on a series of four maps. It has been pointed out in the introduction to the volume that the earliest hydronymy and toponymy of the area indicate that originally it was inhabited mainly by the Baltic speaking peoples, by Finnish peoples in its eastern and north-eastern parts, and by Iranians in the south; at present the Byelorussians, Great Russians and the Ukrainians live there.

The second culture which during the period under review developed in the area was the Iukhnovo culture. Its sites, mainly earthworks, extended over the basin of the middle and upper Desna; west of it extended the area of the Milograd culture. It was briefly dealt with by V. P. Levenok (*KSIAM* 7, 1957, pp. 49–53), and also in a larger article (*SA* 1963 (3), pp. 79–96) in which he distinguishes three periods in its development, 6th–5th, 5th–3rd centuries B.C., and 3rd century B.C. to 3rd century A.D., and discusses its origin and its cessation. Opinions vary as to the origin of the culture: V. P. Levenok connects its establishment with the north-eastward migration, under the pressure of the Scythians, of the people of the Chornii-Lis culture into the area on the middle Desna. V. A. Padin (*SA* 1966 (3), pp. 137–150) shows, however, that there is no ground to connect the Iukhnovo culture with the Chornii-Lis culture. On the other hand, V. A. Ilinskaya (*SA* 1969 (2), pp. 85–102) emphasizes that the Bondarykha culture and western, Trzciniec, elements were the main factors in the formation of the culture. According to P. N. Tretiakov (*SA* 1960 (1), pp. 36–46), the culture terminated in the 2nd century B.C.; its disappearance was due mainly to its mingling with the Zarubintsy culture and its gradual absorption by that culture. A few articles contain brief reports on excavations of the earthworks of the culture: A. E. Alikhova (*KSIIMK* 77, 1959, pp. 15–20; *SA* 1958 (3), pp. 197–201; *MIA* 113, 1962, pp. 86–129); L. V. Artishevskaya (*KSIAM* 107, 1966, pp. 99–102) in the oblast (province) of Briansk; R. L. Rosenfeldt (*SA* 1968 (1), pp. 194–197; *KSIAM* 119, 1969, pp. 100–103), the earthwork in Moscow of the 5th century B.C. to the 3rd century A.D. Of importance were the results of investigation by A. E. Alikhova (*SA* 1958 (3), pp. 197–201) of an early earthwork (Kuzina Gora) 40 km. west of

Kursk, on the north-easternmost periphery of the area of the culture. A large number of remains of the Scythian type imply a strong influence of that culture, the northern boundary of which reached nearly to that area. Investigations of a number of important Iukhnovo earthworks along the river Seim, along the Scythian border, have been reported by T. N. Nikolskaya (*KSIAM* 119, 1969, pp. 14–23).

The racial attribution of the Milograd and the Iukhnovo cultures has been debated by several scholars. O. N. Melnikovskaya (*KSIAM* 7, 1957, pp. 46–48), who considers the Milograd culture as the archaeological equivalent of the early Slavs, points out that no genetic connection linked it with its successive Zarubintsy culture. The latter is commonly attributed to the Eastern Slavs. V. P. Levenok (*SA* 1963 (3), p. 94) says that the people of the Milograd, Iukhnovo and Chornyi-Lis cultures, in proceeding northwards, had gradually absorbed and assimilated the peoples of the Diakovo culture of the Ugro-Finnish stock; later, however, they in turn were assimilated by the Zarubintsy peoples and were Slavicized by them; they may be considered as the pre-Slavonic 'Rus'.

The earliest hydronymy and toponymy of the area of the Milograd and Iukhnovo cultures, as shown by H. A. Moora (*SA* 1958 (2), pp. 9–33), implies the Baltic origin of the peoples who lived there in antiquity. Topics connected with these cultures, and also with the racial conditions and development in the central and northern part of East Europe from the Mesolithic to the end of the first millennium B.C. have been discussed by P. N. Tretiakov in his important work *Finno-Ugry, Balti i Slavyane na Dnepre i Volge* (*Finno-Ugrians, Balts and Slavs on the Dnieper and Volga*, Moscow-Leningrad 1966, 308 pages), already quoted by me in *Bulletin* 7 (p. 45). These topics have also been the theme of several articles by V. V. Sedov (*SA* 1963 (3), pp. 112–125; 1965 (4), pp. 52–62; 1966 (4), pp. 86 ff.) in which the results of linguistic research in the basin of the middle Dnieper and the upper Oka have been shown on a series of maps. They have been presented again on a wider base and the progress of Slavicization of the peoples of that area revealed by the same author in his recent work *Slavyane Verkhnego Podneprovya i Podvinya* (*Slavs of the country on the Upper Dnieper and the Dvina*, Moscow 1970, *MIA* 163, 200 pages), illustrated by a large series of maps and graphs. The study by Iu. A. Krasnov (*KSIAM* 119, 1969, pp. 3–19) of the geographic diffusion of two main, different types of iron sickles, and also the difference in the sets of domestic animals kept in various areas of the East European forest zone, both illustrated by a series of maps, show that the respective boundaries agree almost exactly with the boundary between the ancient Baltic speaking peoples and the Finno-Ugrians, as established by linguistic research of the toponymy of that area.

Another culture of the region was that of the Upper Oka Earthworks. The first chapter (pp. 14–36) of the work *Kultura Plemen Basseyina Verkhney Oki v I Tysyacheleti n.e.* (*The Culture of the Tribes of the Upper Oka in the 1st Millennium A.D.*, *MIA* 72, 1959, 152 pages) by N. Nikolskaya, deals with the earliest earthworks of the area, of the period from the 4th to 2nd centuries B.C. A map on p. 8 shows the

geographic diffusion of these and of all other sites discussed in the book. One of the earthworks was that at Mitino on the Oka (oblast of Tula) investigated by K. A. Smirnov (*KSIAM* 81, 1960, pp. 49 ff.); it was constructed by the mid-first millennium B.C. and was in existence until about the mid-first millennium A.D.

Further north, in Central Russia, several earthworks were investigated, among these the Troitskoe earthwork near Mozhaisk, west of Moscow, as reported by A. F. Dubynin (*SA* 1964 (1), pp. 178–198), to which a special volume has lately been devoted, *Drevnee Poselenie v Podmoskovie (Ancient Settlement in the Country of Moscow)*, Moscow 1970, *MIA* 156, 208 pages) by several authors, mainly by A. F. Dubynin (pp. 5–98). The earthwork lay on the eastern periphery of the Dnieper-Dvina group of earthworks to which it belonged, which borders there on the earthworks of the Diakovo culture. It was constructed in the 4th century B.C. and was in existence for about 500 years.

Several earthworks of the same area were of the same type as that of Troitskoe and yielded similar remains. Like that at Kuznechiki, investigated by A. F. Dubynin (*SA* 1970 (1), pp. 152–164), they were mostly built around 500 B.C. and were in existence till about mid-first millennium A.D. They at first were typical of the Central Russian Diakovo culture the people of which were undoubtedly of Finno-Ugrian stock; by the beginning of the Christian era as indicated by their remains, they acquired a mixed, Balto-Finno-Ugrian character due to the influx of the western neighbours of the Dnieper-Dvina culture (I. G. Rosenfeldt, *SA* 1970 (1), pp. 165–174). Thirteen sites of the Diakovo culture in the valley of the river Moskva were examined by Iu. Krasnov and N. A. Krasnov (*SA* 1963 (1), pp. 204–218); they are plotted on map, p. 205. Brief reports on investigation of two earthworks in the same region, of the Borysoglebskoe and Shcherbinskoe earthworks, were published by P. L. Rozenfeldt (*SA* 1964 (1), pp. 165 ff.) and by the same author jointly with A. F. Dubynin (*KSIAM* 107, 1968, pp. 103–110). The first of these, considered as one of the earliest of the Diakovo culture, was in existence from the 5th century B.C. to the 8th century A.D. Another early Diakovo earthwork at Starshee Kashirskoe, was investigated by V. I. Gulyaev (*KSIAM* 94, 1963, pp. 101–104); a zoomorphic bone handle of a knife was found there, resembling similar finds in Central Russian forest zone and specimens of the Ananino and Sauromatian cultures. D. A. Krasnov and O. S. Gadzyatskaya (*AO* 1967, pp. 24 f.) report briefly on the investigation at Penturovo of an earthwork on the upper Volga, on the north-western periphery of the Diakovo culture, and also of another earthwork (called Dulebskoe) and a settlement at Kozlovo in the same region. Both earthworks were constructed in the first millennium B.C.; in the first of these two occupation layers have been uncovered separated by a stratum of ashes attesting to the destruction by conflagration of the settlement of the earlier stage.

A series of bone knife and awl hilts—some with a simple geometric decoration—found in sites of the Late Kargopol culture, have been described by S. V. Oshibkina (*SA* 1968 (4), pp. 249–253), who also points to their difference from those of the

Diakovo culture; map 2 on p. 252 shows the geographic diffusion of both types. Their date, the 7th–5th centuries B.C., given by the author, has been estimated as being too high; in fact they must have been of a later date.

The book *Drevnyaya Istoriya Srednego Povolzha* (*Ancient History of the Middle Volga Area*, Moscow 1969, 396 pages) by A. Kh. Khalikov is of importance for the study of the conditions in the eastern borderland of the area under review. It deals with the period from the Palaeolithic to the end of the Late Bronze Age (early first millennium B.C.) of the country east of Gorkii up to the lower Kama and middle Volga, southwards approximately to the line Penza-Kuibyshev. All cultures that had developed in that area have been treated separately, the economic, social and racial problems of the population discussed, the characteristic remains shown in a number of illustrations, and the geographic extent of the cultures indicated on a series of maps; a chronological graph is added. The origin of the Marii people, whose territory extends north of Kazan, north of the middle Volga, has been discussed by the same author in the light of the archaeological material, in the article (pp. 9–36) *U Istokov Fino-Ugorskikh Narodov* (*At the Origins of the Fino-Ugrian Peoples*, in the book *Istoria Mariiskogo Naroda*, Yoshkar-Ola 1967).

South of the area above, west of the middle Volga, the Gorodetskaya (Gorodets) culture extended during the Scythian and Sarmatian periods. Its characteristic remains were earthworks. The literature concerned has been quoted in my previous report (*Bulletin* 8 and 9, p. 139), but a number of brief reports dealing mainly with Scytho-Sarmatian weapons deserve mention. A sword, or rather a dagger, found at Demkino near Volsk, described by E. K. Maksimov (*SA* 1962 (3), pp. 282–288) has a grip of bronze, blade of iron, and is of a type known from the ‘Cimmerian’ culture in the Caucasus and the Chornii-Lis culture in the Ukraine, of the 8th–7th centuries B.C. An early Scythian (or Sauromatian) sword with a bronze hilt of a special type, with most of its iron blade missing, was found near Murom in Central Russia; P. N. Grakov (*SA* 1961 (4), pp. 140–147) dates it at the middle of the 4th century B.C., the period of close ties with the Scythian and Sauromatian cultures. All Scythian weapons found within the limits of the Gorodets culture have been listed and described by V. I. Gulyaev (*SA* 1961 (4), pp. 262–265) who quotes seven swords, a helmet, four lance-heads and several bronze and iron arrow-heads of the Scythian type. Mention may also be made to a dagger of the ‘akinakes’ type of the 4th century B.C., found at Vtorye Terbuny near Lipovets, on the western periphery of the culture; it has been described by V. P. Levenok (*SA* 1964 (2), p. 201).

I am grateful to Mr. R. N. L. B. Hubbard for drawing the map.

Book Reviews

MALIK, S. C. *Indian Civilization: the formative period. A study of archaeology as anthropology*. Simla, Indian Institute of Advanced Study, 1968. 204 pp., 13 figs. £2.25.

Dr. Malik accuses Indian archaeology of being intellectually barren, of having no specific theoretical foundation, and of being content with a simple description of the archaeological record rather than the explanation of the social and economic processes which led to the development of the characteristic Indian style of civilization. Problems, in the past, have been confined to classification and chronology; important matters, but no more than a means to an end which, in Dr. Malik's view, Indian archaeologists have failed to define clearly and explicitly. Their frames of reference have been borrowed from nineteenth century evolutionary biology and diffusionist anthropology and they too frequently have mistaken temporal priority for an adequate causal explanation. To remedy this, Dr. Malik proposes to borrow various models and concepts developed by a more recent anthropology, particularly that associated with Columbia and Chicago and which was shaped by the teaching of Boas, Benedict, Redfield, Radcliffe Brown, and Braidwood.

He suggests, for instance, that a useful model for understanding the broad outline of prehistoric cultural development in India can be obtained by adapting Braidwood's well-known scheme of developmental subsistence and settlement types, which moves from simple food-gathering to expanded village communities with specialized craft industries. This is no doubt more informative than the simple description and classification of artefacts, but it is a model based on Near Eastern archaeological experience; a region of markedly different environment and cultural traditions from India. And even there, Braidwood's model seems to have no place for the very early, possibly pre-agricultural, fortified settlements of Palestine, nor for neolithic 'cities' such as Çatal Hâyäk. And what justification is there for introducing seasonality only in Malik's stage B.1? A seasonal rhythm in exploitive activities is found throughout the world, in natural as well as in cultural systems, and to suggest that in Stage A.1 of the Old Stone Age, man was 'free wandering' is simplistic indeed.

In chapter four, *The Formative Period of Indian Civilization*, Dr. Malik re-evaluates the evidence for the Harappa Culture using the concepts of structure and function from Radcliffe-Brown's a historical anthropology, and the folk-urban and Great and Little Tradition models developed by Redfield. This is, in many ways, a most valuable synthesis of the evidence for a crucial phase in Indian civilization with many fresh insights into the relationships between village and town in the prehistoric

Indus valley. But one wonders at the end whether Dr. Malik has added anything basic to our understanding of the Harappa Culture. Is there anything here not already covered at one time or another, more stylishly, and with less anthropological jargon, by Marshall, Mackay, Piggot, Wheeler and Casal?

This is a provocative book which will not win many friends for Dr. Malik among his professional colleagues. But anyone who has had to read recent Indian archaeological publications must admit that many of his strictures are well deserved and timely. If the book can fulfil its aim 'to stimulate interest in the development of different approaches to the study of archaeology . . .' (14) then we shall all be in Dr. Malik's debt. One hopes that he will now show, by example, how careful, multidisciplinary field research based on a well thought out theoretical framework can illuminate and explain some of the outstanding problems in Indian prehistory.

I. C. GLOVER

Glob, P. V., *The Bog People*. Originally published in Denmark by Gyldendal as *Mosefolket Jernalderens Mennesker bevaret i 2000 År*. 1965. First published in Great Britain by Faber and Faber Ltd. 1969 (hardback). Published in paperback by Paladin, 1971. 139 pp. 2 figs., 76 plates. Price: 60p.

Professor Glob tells the story of the discovery of Iron Age people preserved in the peatbogs of Denmark. He approaches his subject from many angles, starting with early reports of discoveries made in previous centuries preserved in old newspaper cuttings and private papers, and going on to consider more recent developments in the approach to the subject; the dating of the bodies by pollen analysis of the peat in which they lie, the problems which arose in convincing the public and the scientist alike of the antiquity of the Bog people and the ways devised for retrieving the bodies from the bogs intact and for preserving and displaying them in museums.

He discusses several interesting theories which may account for the presence of the people in the Bogs. Did they arrive there as a result of foul play, superstition, as a propitiatory sacrifice to the Iron Age gods or in some cases merely as a result of an unfortunate accident? In his interpretation, Professor Glob takes into consideration every aspect of the available evidence from the food remains in their stomachs, the clothing, ornaments and weapons they wore and the vessels occasionally found with them, to the more sinister stones and hoops which in several cases held the person prisoner in the bog, and the all too explicit evidence from the bodies themselves such as the decapitated head, the neck strangled by a rope or the skull beaten in by a fatal blow.

From other archaeological finds as well as hints contained in myths and the occasional piece of evidence from a classical writer, Professor Glob gives a lively sketch of the Iron Age background against which the Bog people must be set, the communities they lived in and the kind of social order which probably existed.

The enthusiastic response which this book has already won for itself from many people with very varied interests is well deserved. Professor Glob has most successfully combined a scientific and objective approach with an easy and absorbing literary style which is successfully retained in Rupert Bruce-Mitford's translation. The photographs are particularly excellent and the only complaint is that the numbers which appear in the list of illustrations and which could profitably have been referred to in the text do not appear on the photographs.

A. M. Ashmore.

Radiocarbon Variations and Absolute Chronology, Proceedings of the Twelfth Nobel Symposium held at the Institute of Physics at Uppsala University, Ed. Ingrid U. Olsson, John Wiley and Sons, Inc., New York; Almqvist and Wiksell, Stockholm. 1970. 657 pp. £21-25.

The dedication in 1969 of a Nobel Symposium to the problems of radiocarbon variations and their implications for the measurement of chronology is a just reflection of the importance which radiocarbon research has assumed for a whole range of sciences in the two decades since its inception by Dr. Willard Libby. For archaeology, it is of course of fundamental significance; but don't let us deceive ourselves that it is this alone which has produced the world-wide concentration of research funds and scientific ability so convincingly displayed in the published proceedings of this notable gathering. In fact only one professional archaeologist, Dr. Evzen Neustupny, was present! We must look for the explanation rather in the astonishingly wide ramifications of the subject and its relevance to the solution of problems in a great variety of fields. As Professor P. E. Damon of Arizona put it in one of the closing papers: 'We have seen how our research is related to astronomy, solar and cosmic ray physics, meteorology, oceanography, biology, chemistry, geology, pedology, geochemistry, geophysics, geochronology, history and archaeology' (p. 644), and he very reasonably offers this for our consideration as a prime example of the fundamental unity of all science.

Since we stand to be among the greatest beneficiaries from the results of radiocarbon research, we archaeologists ought to be profoundly thankful for this broadly based interest in radiocarbon research, since it is our best possible guarantee that it will continue to develop and extend. What else could assure the continued supply of funds and specialised manpower required for such costly and time-consuming research? Certainly not archaeology on its own! And again, quite apart from the question of ways and means, the interest of scientists is not to be compelled; even if we could raise the funds for it, the activity of hired technicians turning out endless determinations for us would be a poor substitute for active co-operation with some of the best minds in their respective fields in a great international and interdisciplinary research project.

For this, in fact, is what radiocarbon research can now be seen to be; not just a technique created by physicists for the delight or annoyance of archaeologists, depending on their temperamental and chronological predilections. There is no doubt that many of us have tended, in the past, to a parochialism of outlook in this respect to which the present book offers a salutary and indispensable corrective. Only the first of nine sections is devoted expressly to the relations of C14 with archaeology; the remainder, apart from a section on pottery analysis (thermoluminescence dating and neutron-activation analysis), are devoted to C14 and Varve Chronology, C14 and Dendrochronology, Ice-core analyses, Exchange-rates and radiocarbon in different reservoirs, Radiocarbon isotopes in the atmosphere and meteorites, Causes of secular C14/C12 variations, and Dates of C14/C12 variations with respect to dendrochronology.

Reading these sections, even if one is not well equipped to understand the technicalities and the formulae, nevertheless produces a profound sense of the range and scope of the research embodied in them. Even ignoring the theoretical and interpretative aspects of these papers, the sheer mass of carefully observed and measured data which has been accumulated to bear on the problems of radiocarbon variations is overwhelmingly impressive. But certainly no less impressive is the measure of apparent agreement reached by workers approaching the same problems from many different angles. It covers, to a greater or lesser extent, such fundamentals as the existence and chief causes of world-wide synchronic variations through time in the amounts of radiocarbon present in the atmosphere, the periodicities of this variation and their individual causes, variation in the amounts of C14 present at different latitudes and longitudes at the same time, and the limits of this, the differences in absorption and exchange rates between the various reservoirs, and, of course, the amount and direction of the world-wide variations themselves back to *c.* 5000 B.C.

There are, naturally, still many gaps and uncertainties; many of these were forcefully pointed out in the papers and discussions, and suggestions were made as to the best means of eliminating them. One major desideratum is the extension of the curve of variation back beyond 5000 B.C. on the basis of reliable data. Attempts to do this by relating conventional dates to varve chronologies (Tauber, Stuiver and Vogel) have produced differing results and the best hope now seems to lie in a further extension of the tree-ring chronology (Libby, p. 246). Another necessity is for further work on the minor fluctuations shown in Dr. Suess's variation for the last 7000 years, since considerable doubts seem to exist about the validity of some or all of these (pp. 309–311). The limits of the reliability of radiocarbon dating also need further checking, and the Symposium adopted a Resolution (p. 653) to sponsor a systematic programme for the collection of historically dated samples from Egypt to further this.

Despite the remaining doubts and uncertainties, however, what has already been established is of over-riding importance to all archaeologists concerned with the developments of the last few millennia B.P. There seems to be pretty complete agreement on the existence of a long-term trend towards progressively higher natural

radiocarbon values in the atmosphere from *c.* 3000 B.P. back to at least *c.* 7000 B.P., which means that conventional C14 dates in the range from 1000 to 4000 B.C. should be consistently too young by *c.* 100 (at 1000 B.C.) to *c.* 750 (at 4000 B.C.) solar years.

The consequences of applying these corrections are very different, depending on which field of archaeology one happens to work in. For the Egyptologist and the specialist in early Mesopotamian civilisation they effectively reconcile a long standing conflict between the C14 and historical chronologies, but for the European pre-historian they serve to exacerbate an already difficult situation. Conventional C14 dates in this field, especially for the period 2000–5000 B.C., were already at variance with the pattern expected on pre-C14 interpretations of the archaeological evidence. While still in process of adjusting to this situation we are now seemingly faced with the necessity of new upward adjustments, making a pattern even more out of line with previous assumptions.

It will take time to assimilate this and re-think our positions, more especially because there are still many unknowns. The C14 cover is still very patchy in many parts of Europe and adjacent portions of Western Asia. We shall need many more dates, and, in certain areas particularly, more conventional archaeological exploration before a new pattern emerges which can be accepted as wholly satisfactory. But at least we shall not die of boredom!

Returning to the book itself, it is a lavish production on art paper, and has been well edited, though some diagrams have been reproduced on rather too small a scale, which makes them difficult to decipher. Otherwise, however, it is a worthy record of an important conference, which is certain to be much referred to in the coming years. What a pity that its price puts it effectively beyond the reach of most individual scholars!

J. D. Evans

Williams, J. C. C., *Simple Photogrammetry*. London and New York, Academic Press, 1969, x, 211 pp., 51 figs., 50s.

Although it was not written solely for the archaeologist, this book originated in the author's collaboration with Miss Honor Frost at Arvad in Syria, where the methods described were applied and found to be effective: see Frost in Throckmorton et al., *Surveying in Archaeology Underwater* (London, 1969), 32 ff.

Most of the work is concerned with rough plan-making from single, oblique photographs taken with an ordinary 35 mm. camera. Since the oblique is the most difficult type of photograph on which to base a survey, it may seem an odd choice for a book bearing such a title, and one might object that by this means it is the photography rather than the photogrammetry that is simplified. Nevertheless, circumstances may arise in which such methods may be useful, e.g. when time or access is limited, or when photographs are the only surviving record.

As an exposition of the possibilities of random photography this study is remarkably thorough, except for a surprising neglect of optical instruments of rectification. It hardly offers in itself, however, a practical means of surveying. The main difficulty in planning with oblique photographs, particularly those taken near ground level, is in the distortion caused by surface relief. Even in the case of vertical aerial photographs accurate results are possible only with the help of stereoscopy and a good deal of conventionally surveyed ground-control. Given the latter, the methods discussed may be useful for filling in detail, when conditions are favourable.

H. M. Stewart

Buxton, David, *The Abyssinians*. Thames and Hudson, 1970. 259 pp., 51 figs., 128 pls., £2.50.

The subject of David Buxton's book *The Abyssinians* is the Christian culture of highland Ethiopia. The first three chapters present a sketch of the geography, flora and fauna of these highlands, a summary of the pre-history and the history of the area, and a brief discussion of the life of the people, the Church, and the close relationship between the two. The last chapter is couched in terms of the present, but presents a picture not too different from the past. This is one of the more engaging parts of the book, as it incorporates observations and experiences gathered by Mr. Buxton during his stay in a provincial area of central Ethiopia in the 1940's, a valuable and enviable experience. The first portion of the book, which presents material that is readily available and more fully developed elsewhere, serves as an introduction to that part of the text dedicated to a discussion of the arts of the Christian highlands—architecture, painting, literature, music and minor arts.

The chapter on architecture includes the pre-Axumite through to the end of the medieval period. The architecture of Gondar, dating to the post-medieval period and reflecting foreign influences not yet properly defined, has not been included. The discussion of medieval churches includes the very old monastery church of Debra Damo, the rock-hewn churches of Lalibela, as well as the recently located rock-hewn churches of Tigray province. Although the latter have been published in an expensive monograph, they become accessible here to a wider audience. Mr. Buxton, in fact, discovered some of these churches and the admirable photographs and lucid descriptions reflect his dedication to the subject. He suggests that the group of rock-hewn churches of Tigray are older in date than those to the south at Lalibela. No absolute dates are available; one must rely upon stylistic comparisons and historical evidence to reach general conclusions. With the decline of the Axumite empire, there was a gradual shift in the centre of political power toward the south. The dates of the groups of the rock-hewn churches perhaps reflect this shift.

When working with a difficult subject, it is unnecessary to complicate matters but this the author seems to have done when he compared several Tigray churches of

cross-in-square plan with a 'very early cruciform church plan which is known from the Christian sites of Gerasa (Jerash), Ephesus, and Salona in Dalmatia' (p. 108). These fifth and sixth century churches, known only in plan, reflect a Constantinopolitan prototype, the Apostoleion of Constantine, rebuilt in the sixth century but described by Eusebius. From the sixth century onward, however, centralized plans formed the basis of Byzantine church architecture and, moreover, the cross-in-square form, the most typical of Middle Byzantine church plans, became widely adopted and adapted in the areas dependent upon Byzantium. It would seem more logical to interpret the plan of the Tigris churches as a reflection of this later stage of development.

The chapter on painting includes a general discussion of manuscript illumination, painted icons, and wall paintings from the fourteenth century onward. Some years ago Mr. Buxton discovered and photographed an extremely important illustrated Gospel book from Debra Maryam (Eritrea), which has subsequently been almost totally destroyed. Although he was not able to include photographs of all of the illustrations that comprised the impressive multiple frontispiece of this manuscript, one regrets that a complete list of the subjects was not included in the text. Appendix B gives the date A.D. 1361 for this manuscript, but no other facts about the colophon are included.

Materials of scholarship are sometimes omitted. Few of the plate captions include identification of the present location or collection and only rarely are dimensions of works given. While this is a good introductory book with an emphasis upon the arts, it could have been a source for the serious student as well.

Marilyn E. Heldman

Wightman, Edith Mary, *Roman Trier and the Treveri*. 55 plates, 25 text figures, 8 maps. Rupert Hart-Davis, London, 1970. £4.00.

Trier and the Treveri emerged on a number of occasions into the mainstream of Roman history: during Caesar's campaigns in Gaul, the revolts of 21 and 69 A.D., and, brilliantly, as a great imperial capital and its dependent territory in the fourth century A.D. The city was, in addition, throughout the Roman period an important economic and military centre in the hinterland of the Roman Rhine frontier. Dr. Wightman's study of the city and the tribe is both comprehensive and readable (the latter a virtue not always apparent in books whose origins lie in theses presented for Ph.D.'s) and bears comparison with similar monographs such as Laur-Belart's guide to Augusta Raurica, or Boon's *Silchester*, besides being more extensive in scope than either. Her publishers are to be thanked for allowing her to include numerous plates (of excellent quality) and to retain copious footnotes and an exhaustive bibliography—although some two dozen misprints in the body of the text alone bodes ill for the reader who wishes to make use of the footnotes.

The plan of Dr. Wightman's work proceeds naturally from a geographical, archaeological and historical survey of the area in pre-Roman and Roman times, and goes on to a detailed study of the city and its monuments, the countryside with its villas (including the great luxury villas of the fourth century), and other settlements. It concludes with chapters on daily life and economics, and religion, drawing widely on archaeological and epigraphic sources, and particularly the rich sculptured reliefs from sites like Neumagen and Arlon. The reader may well want to have Espérandieu's great Corpus of the sculpture, or Parlasca's of the mosaics at hand, for only a fraction of the material referred to can be illustrated.

Students of Roman Britain, to whom she says her work is in part aimed, might well ask themselves how a similar study of a British town and its environs would compare. Alas, even London's 330 acres was less than half the area of Trier, and what is lacking in London, and indeed all our cities, are the great upstanding buildings which survive in such splendour at Trier, the 'basilika', imperial baths, amphitheatre, *Horrea* and Porta Nigra, not to mention the complete plans of the great fourth century double church, and Barbara Baths. For doing justice to such material, and then, as a bonus, giving him the *umgebung* too, the student of Roman Britain must be enviously thankful.

(It has not been possible in this short review to include detailed discussion of particular points).

Mark Hassall

Megaw, J. V. S., *Art of the European Iron Age: A study of the elusive image*. Bath, Adams and Dart. 1970. 195 pp. 140 pls. Text figs. 17. Maps in end-papers. £8.40.

This book is the first ever written in English that has been devoted solely to the arts of both mainland Europe and the British Isles during the pre-Roman (and also, to a certain extent, the Roman) Iron Age. In fact, its scope is more limited than its title suggests, for the author is primarily concerned with the arts of the early Celts. The work is essentially an encyclopaedia-cum-picture-book, consisting of long catalogue-entries for the objects illustrated, prefaced by an introductory essay. The selection of material is good, for it brings out well the variety in style and expression that is to be found in early Celtic art. The copious bibliographic material in the catalogue will therefore be especially useful to those who wish to study the subject in greater depth. The plates, however, are of varying quality, ranging from the superb (e.g. the oblique detail of the Witham shield-boss) to the abysmal: for example, the reader who really wants to follow the excellent description of the Dürrenberg flagon on pp. 74-5 will be frustrated unless he has access to Neuffer's far superior views in Jacobsthal's *Early Celtic Art*. Incidentally, the photograph of the 'Petrie Crown' (no. 270 has been printed upside down (though it is always instructive to study early Celtic works of art both ways up, as the author has himself brilliantly shown with

regard to such pieces as the Bad Dürkheim two-way face—no. 59), and the photograph of the Turoe stone (no. 129) has been printed in reverse.

As is bound to happen, some misconceptions and errors of fact do occur in the book. The following are some of them:

1. Cerrig-y-drudion is in north, not south, Wales (pp. 29, 34).
2. There is no hillfort by the name of High Rocks in Leicestershire (p. 98)—the object referred to was discovered at High Cross which is not a hillfort but an open settlement, apparently of Roman date.
3. The grave at Nijmegen in which the British mirror (no. 263) was found did also contain a glass urn but no Gallo-Belgic, nor any other pottery; the 'three "buttons" of grey paste' that adorn the handle-escutcheon of this mirror are of red enamel (albeit much restored).
4. If no. 264 can really be identified as a terret, which is doubtful, then the so-called 'horns' are not really horns but the stumps of the ring.
5. The 'openwork piece' from a cave at Coygan, noted in the entry no. 262, is actually the same piece as that referred to as having been found at Kyngadl (since Coygan Camp=Kyngadl); the triskele on this object can scarcely be described as 'compass-drawn', for it is quite clearly a freehand rendering.
6. However one describes the silver-gilt brooch from the Birdlip mirror-burial, it can surely not be considered an *Augenfibel* (pp. 162, 174), as Green has pointed out (*Proc. Prehist. Soc.* 15 (1949), 188–90).
7. There is no evidence that no. 300 was found in the north of England; this supposition was based on the false premise that everything else formerly in the Meyrick collection, in which no. 300 once was, was found in the north of England; in fact, this collection also once included the Witham shield, so it is high time that the designation '?Northern England' for the Meyrick helmet was rejected. In fact, stylistic parallels can as easily be found in the south as in the north of England.
8. The hatching on the 'Mayer' mirror (no. 260) is neither rocked trace nor engraved, but punched. Incidentally, the so-called 'rocked tracer' ornament referred to here and elsewhere was produced by rocking a graver, not a tracer, as it was worked forward across the metal; as recent work by A. and P. Lowery and R. Savage has shown, several types of graver, each producing its own characteristic 'line', were used by early Celtic craftsmen for engraving *tremolo* lines. The tracer is a kind of punch, *not* an engraving tool, a misconception which occurs throughout this book. Furthermore, the description on p. 36 of the method of ornamenting the backs of the British mirrors does not, as the author implies, apply to all the mirrors; Fox's comment only really applies to the Colchester mirror. Megaw here reiterates an error made by Fox himself.
9. The Castle Newe armlets were not associated with a coin of Nerva (p. 174, col. 1), but merely found *near* it (*cf.* M. Simpson, in J. M. Coles and D. D. A. Simpson (eds), *Studies in Ancient Europe* (1968), 238). Only stylistic arguments can be used for dating the Scottish 'massive' armlets. Indeed, there is no satisfactory

evidence for dating any of the Scottish material discussed and catalogued by Megaw, nor, for that matter, any of the later Irish objects. Such pieces as the Bann disc (no. 271) or the Pitkelloney armlets (Pl. VIIIb) could as easily be third or fourth as first/second century A.D. in date.

10. The bowl from Keshcarrigan (no. 273) is most unlikely to have been an import from Britain, for the only close parallels to it have been found in Ireland: a willow cup of unknown, but Irish provenance, now in the National Museum of Ireland (E. M. Jope, *Ulster J. Archaeol.* third series, 18 (1954), 92), and a very similar handle in the recently discovered hoard of bronze and gold objects from Somerset, Co. Galway (J. Raftery, *J. Roy. Soc. Antiq. Ireland* 90 (1960), 3, Pl. I, No. 162). The cup from the Colchester mirror-burial is not really similar to that from Keshcarrigan, nor to the south-western English bowls of Rose Ash type.

As Megaw notes on p. 9, the dating of many of the objects that he has considered is extremely difficult. Furthermore, if one is unsure of the total variety in expression at any particular time chronology is made more difficult. This is especially true of the objects considered, for many of them, in particular those from the British Isles and from such continental areas as Czechoslovakia, were either found singly or with types that are not susceptible to close dating. In view of this, many of the chronological judgements that are made in this book must be treated with a great deal of reserve. Such considerations are important for, unless our chronologies are sure, historical and other interpretation is made well nigh impossible. This is particularly important for Britain in trying to trace the continuity of stylistic expression seen there with what went before on the Continent, for at present most of the 'artistic' activity in Britain seems to be very late in the pre-Roman period. If one accepts the relatively early dating generally proposed for many of the relevant continental pieces, a curious hiatus is apparent between them and the stylistically linked pieces in Britain. It seems difficult, for example, to disregard the late associations for such pieces as those from Frasnés-lez-Buissenal (no. 173) and Kelheim (no. 178), and to argue that they were made at a significantly earlier date, when it is from precisely such associations that our chronology must in the first place be built up. Furthermore, it seems doubtful whether the Batina find in Yugoslavia, mentioned on p. 116, can be used to date the ornamented sword-scabbard found there and hence the 'Hungarian sword-style', for the objects allegedly associated with the sword in the same grave include two different types of metal shield-boss mounts (K. Vinski-Gasparini, *Arheol. Radovi i Rasprave* 1 (1959), Tab. 1.8 and 10-11). From what we know of warrior-burials it is most unlikely that two shields should have been found in the same grave; the implication would seem to be that the find is mixed—whether or not any of the objects alleged to have been found together really were must remain an open question.

The sub-title of the book indicates that the theme running through the work is iconographic; indeed, it is in this field that the author has contributed so much to our understanding of the arts of the early Celts. However, although faces do appear on virtually every page of the illustrations printed in this book, it cannot really be said

that this is the uniting theme in the introductory essay. The introduction does however, contain some very useful thoughts, particularly on the ways in which we should approach the art (on which see now also the author's remarks in *Proc. Prehist. Soc.* 36 (1970), 261–79). Megaw has coined the term 'Disney style' to designate a particular group of objects on the Continent, and has suggested the image of Mickey Mouse as a useful device towards understanding the nature of certain aspects of early Celtic art. However, it is not clear that the term 'Disney style' is particularly useful in the sense that he uses it. Although it is true to say that on objects like the ?Sardinian gold finger-ring (no. 169) the nose or eyes would not be recognisable as such if abstracted from their context, since the face has been 'broken down into a number of curvilinear forms—crescents, ovals, circles, and the like— . . . close to the twentieth-century film cartoonist's processes of creation' (p. 30), is it also true to say that this is restricted to such objects as nos. 161–2, 164–70? As the author himself notes (p. 102), this is already apparent on such objects as the Barbuise neckring (no. 143), and, later, as the author has elsewhere noted (*Antiq. J.* 42 (1962), 26, 27), on such objects as a La Tène D linchpin from Manching (p. 110) and the strongly formalised 'horse-head' from the Melsonby ('Stanwick') hoard (C. Fox, *Pattern and Purpose* (1958), Pl. 52B). In view of this, and although the Mickey Mouse image itself is a useful heuristic model in this study, it is to be hoped that the sense in which the term 'Disney style' is used by Megaw does *not* find general acceptance. Furthermore, to recall the sub-title of the book, can we really speak of these images as being particularly elusive? The face on the ?Sardinian finger-ring is obvious enough. Nevertheless, elusive images there are, particularly in the British Isles; indeed, it is of interest to spot in the photographs here printed those images that the author himself appears to have missed, or at least does not note in the text. For example, they can be seen on the neck-guard of the Meyrick helmet (no. 300), upside down as printed, four times on one of the Santon quadrilobe harness-mounts (sideways on Pl. VIIIa, left), upside-down on the handle-escutcheon of the Nijmegen mirror (no. 263), and top right amongst the incised pattern on the reverse of the Great Chesterford mirror (no. 261, Fig. 15). Lastly, a two-way face laid out in the Bad Dürkheim manner on the Standlake scabbard-mount (no. 250) belies the author's statement that the Bad Dürkheim two-way face is unique (col. 2 on p. 68); indeed, this is surely not merely a case of *double*, but of *triple entendre*! Yet another two-way face can be seen on the spring-end of the bow of the Birdlip silver-gilt brooch (*Archaeologia* 61 (1909), 341 Fig. 9, right). Indeed, such two-way faces are quite common in British late pre-Roman Iron Age art. At first sight, these patterns, together with those noted by Megaw (nos. 253 and 303), appear to be aniconic.

To continue on the theme of images, Megaw refers on p. 12 to what Gombrich has called the *schemata* or 'minimum clues' of expression (in *Art and Illusion, passim*). Such a concept seems reasonable when applied to early Celtic art in general as it is to other art-styles, but is scarcely valid for such objects as nos. 6, 8, 9 and 10, considering the size of the human and animal images and the media and techniques in which they are executed; these particular images could thus scarcely be anything

other than *schemata*, however hard the craftsmen tried to make them otherwise.

One final general point may be raised about the study of early Celtic 'art-objects'. One defect in much of the previous work in this field has been the tendency to study them on the level of art for art's sake. Although several recent writers have discussed in *general* terms the relation between this art and what we know, or think we know, of early Celtic society—for there has been a great deal of misuse of the palaeo-sociological information that we do have—little attempt has been made to determine whether or not particular styles can be matched with the regional groups that have been defined from the analysis of other archaeological data. Since the assumption on which the cultural model is based is that such groups represent different societies, and since style is after all not merely a personal affair but also an expression of the identity of a whole society (*cf.* E. H. Gombrich, in *International Encyclopaedia of the Social Sciences* 15 (1968), 352–61; for a study of the importance of context in the interpretation of art-styles, see P. J. Ucko and A. Rosenfeld, *Palaeolithic Cave Art* (1967), 150ff), it would be interesting to see in detail what the respective distributions of the several 'art-styles' might be. Megaw rejects this approach on the grounds that the craftsmen were probably peripatetic (p. 9), and that 'a distribution map of the original or present-day locations of the paintings of Albrecht Dürer, for example, would hardly give a true indication of the artist's origins' (pp. 9–10). However, since the former model has not been properly tested, it seems premature to reject it out of hand. Preliminary experiment by the reviewer has suggested that Megaw's view may not be correct, or that if the craftsmen were peripatetic, the areas in which they worked or in which their products were distributed were sometimes relatively restricted. For example, Megaw himself refers to and illustrates several examples of the openwork hooked belt-plates of Hölzelsau type which, as he notes, are principally concentrated along the southern fringes of the Alps in northern Italy and Switzerland (nos. 95–9). One of the main troubles in attempting such an exercise would be the need to re-analyse and re-group the relevant objects, since the groups worked out by the late Paul Jacobsthal are not sufficiently detailed or precise. Nevertheless, such an exercise would doubtless produce some extremely interesting results.

In conclusion, Vincent Megaw's book is very greatly to be welcomed, for it provides many valuable insights and a much-needed review of this most fascinating, if hazardous, of topics.

Mansel G. Spratling

BOOK REVIEWS

BOOKS RECEIVED

The following books have been received. The fact that they are listed here does not preclude their review in a later issue:

BÄUML, F. H.	Medieval Civilization in Germany London, Thames & Hudson, 1971.	£2.50
CLARK, J. D.	The Prehistory of Africa London, Thames & Hudson, 1970.	£2.50
CUNLIFFE, B.	Fishbourne London, Thames & Hudson, 1971.	£4.50
DIBNER, B.	Moving the Obelisks M.I.T. Press, U.S.A. 1970.	£0.95
DOE, B.	Southern Arabia London, Thames & Hudson, 1971.	£4.20
GIMBUTAS, M.	The Slavs London, Thames & Hudson, 1971.	£3.50
HOOD, S.	The Minoans London, Thames & Hudson, 1971.	£3.50
SULIMIRSKI, T.	The Sarmatians London, Thames & Hudson, 1970.	£3.50
TOYNBEE, J. M. C.	Death and Burial in the Roman World London, Thames & Hudson, 1971.	£3.15

UNIVERSITY OF LONDON

INSTITUTE OF ARCHAEOLOGY

Twenty-seventh
ANNUAL REPORT

1 August 1969—31 July 1970

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Dr. G. H. Bolsover

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Professor J. F. Kirkcaldy

Professor W. B. Emery

Professor W. Watson

Two members of the non-professorial staff nominated by the non-professorial staff through the Academic Board:

Mr. P. J. Parr

Dr. J. d'A. Waechter

The four Professorial Heads of Department of the Institute (ex officio):

Professor G. W. Dimbleby*

Professor E. E. D. M. Oates

Professor J. D. Evans

Professor D. E. Strong

Five other persons:

Dr. R. L. S. Bruce-Mitford

Sir Eric Fletcher

Professor J. G. D. Clark

(One vacancy)

Mr. A. R. Dufty

Sir Eric Fletcher acted as Chairman throughout the session.

*Members of the Financial Sub-Committee

ADMINISTRATION

Director: Professor W. F. Grimes, C.B.E., M.A., D.Litt., F.S.A., F.M.A. (A.T.)*

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Director's Secretary: Mrs. M. Hunt

Senior Administrative Assistant: Miss J. V. Brown

Administrative Assistants: Mrs. A. H. Rainbow (from 22nd June, 1970)

Mrs. T. S. Batchelor

Miss S. E. Johnson

Miss N. Marskell (from 8th September, 1969)

Staff matters

The Director continued to serve as Chairman of the Royal Commission on Ancient Monuments in Wales and Monmouthshire and as a member of the Royal Commission on Historical Monuments (England) and the Ancient Monuments Boards for England and for Wales. He continued as Chairman of the Field Studies Council, Council for British Archaeology Committees on Ancient Agriculture and Industrial Archaeology, the London Topographical Society, the Deserted Medieval Villages Research Group, the Nene Valley Research Committee and the Milton Keynes Research Committee. He was appointed Chairman of the Committee on Resources within the Council for Environmental Education, of which he was also a member. He served as a member of the Conservation Liaison Committee and was appointed a member of the Conference on the Training of Architects in Conservation. He continued to act as Honorary Treasurer of the Council for British Archaeology.

Professor Evans was elected to the Council of the Society of Antiquaries.

Professor Strong served on the Council of the Royal Archaeological Institute, the Roman Society and the Society of Antiquaries of London and again acted as Chairman of the Society for Libyan Studies.

Dr. Waechter was elected Hon. Secretary of the Royal Anthropological Institute.

Dr. Cornwall was awarded the Henry Stopes Memorial Medal for 1970 by the Geologists' Association.

Mr. Stewart was elected Hon. Research Fellow in Egyptology of University College for the 1970/71 session.

Dr. M. I. Speight, Research Assistant in the Department of Human Environment resigned to take up a British Ecological Society Fellowship in February.

Miss Anna Plowden was elected a Fellow of the International Institute for the Conservation of Historic and Artistic Works.

Mr. Ian Glover was appointed Lecturer in the Archaeology of South Asia and will take up his appointment at the beginning of the 1970/71 session.

Mr. Richard Reece was appointed Lecturer in the Department of the Archaeology of the Roman Provinces and will take up his appointment at the beginning of the 1970/71 session.

*A.T. Appointed Teacher, R.T. Recognised Teacher of the University of London, throughout.

Miss Taylor, who retired at the end of the session, was succeeded as Librarian by Miss Talbot. Miss Alexandra Tuckwell has been appointed Senior Library Assistant and Miss Belinda Barrett has taken up a temporary appointment as Assistant in the Library.

Miss J. du Plat Taylor

Miss Taylor has been Librarian for twenty-five years where her gift for organisation added to her knowledge of archaeology made a great contribution to the work of the Institute. She continued with archaeological work in various of the Mediterranean lands throughout this time and there and at home was particularly active in the development of underwater archaeology. Miss Taylor will be missed by staff and students alike.

Miss N. Marskell and Mrs. A. H. Rainbow joined the administrative staff.

Public Lectures and Exhibitions

The Special University Lectures in Archaeology were given in March by Professor H. T. Waterbolk of the State University of Groningen. Professor Waterbolk lectured on 'Some Bronze Age, Iron Age and Early Medieval Settlements in the Netherlands'. Attendances averaged 47.

Other lecturers during the session included Professor J. Golson (Australian National University), Professor A. D. Trendall (La Trobe University, Victoria), Dr. A. C. Renfrew (University of Sheffield), Dr. J. d'A. Waechter, Dr. Peter Warren (University of Durham), C. A. Burney (University of Manchester), Dr. Jorge Angulo (Instituto Nacional de Antropología e Historia, Mexico), Lord William Taylour, Dr. V. Karageorghis (Department of Antiquities, Cyprus), Dr. Clare Goff (Kingston-on-Hull College of Education) and Professor E. O. Negahban (University of Teheran). The lectures given by Professor Trendall and Lord William Taylour were held in association with the Institute of Classical Studies; by Dr. Warren in association with the Institute of Classical Studies and the British School of Archaeology in Athens; by Dr. Renfrew in association with the British School of Archaeology in Athens; and by Professor Negahban in association with the School of Oriental and African Studies. Attendances averaged 79.

Professor Strong delivered his Inaugural Lecture, 'The Romans and Archaeology', in May to an audience of 210.

Exhibitions mounted included a display illustrating the work done by Dr. Waechter at Swanscombe, on which he gave a public lecture; an exhibition entitled 'The Countryside in 1970 B.C.', set up as part of the Conservation Year contribution; and the annual display of work produced by students in the Photographic Department.

The Institute continued its long-standing co-operation with the Extra-Mural Department in teaching for the courses leading to the University Extension Diploma in Archaeology. As usual several courses were held in the building and the lecturers both here and elsewhere included past and present students of the Institute. The Director and Mr. P. J. Parr continued to act as External Examiners.

Students

The total number of students registered at the Institute during the session was 160; in addition 58 Intercollegiate students attended courses. Of Institute students 18 were registered for Diplomas (1 part-time); 67 for Higher Degrees (8 part-time); and 36 for B.A. and B.Sc. Hons degrees. 23 students were registered for the course in Archaeological Conservation (6 part-time); and 3 for the course in the Conservation of Historical Monuments. Fourteen full-time Occasional students attended lectures and used the facilities of the Institute.

Two students were awarded the Diploma in European Archaeology, one in section B1 (Iron Age and Roman Provinces) and one in Section B2 (The British Isles in the Anglo-Saxon period); two the Diploma in Prehistoric Archaeology and two the Diploma in Western Asiatic Archaeology, one A. Mesopotamia and one C. Anatolia.

Of the 67 Higher Degree students, 33 were registered for the Ph.D. full-time (one in the Faculty of Science) and 3 part-time. Twenty-three were registered for the M.Phil. full-time and 6 part-time. Two were registered for the M.A. Ph.D.s were awarded to I. M. Crawford (Prehistoric Department) in October and W. H. Manning (Roman Department) in November and M.Phil.s to C. Dortch (Prehistoric Department) in June; J. W. Haldane and Miss I. Haglund (Prehistoric Department) in October and Miss V. Izon (Western Asiatic Department) in May.

Eight students qualified for the Institute's Diploma in Conservation (four with a mark of Distinction).

Twenty-two countries were represented by 58 students registered at the Institute as follows: Aden, 1; Australia, 1; Canada, 1; Cyprus, 2; Czechoslovakia, 1; Denmark, 1; Germany, 3; Greece, 4; Hungary, 1; India, 1; Iran, 1; Israel, 1; Jordan, 1; Lebanon, 1; Libya, 1; New Zealand, 1; South Africa, 2; Sweden, 1; Switzerland, 1; Thailand, 1; Turkey, 5; U.S.A., 25.

The Students' Union

The second year of the Union's existence saw a further influx of undergraduate students, thus providing greater scope for Union activities. Memoranda were submitted representing student opinion on teaching and the Easter field course, while representatives of the Union met the University Grants Committee on their triennial visit to the Institute. Representation on committees and at Academic Board meetings of the Institute continued, this liaison helping to maintain the excellent student/staff relations. A social committee was set up and a successful party held at the end of the Summer term.

The Officers of the Union were:

<i>President:</i>	Mr. K. Wardle
<i>Secretary:</i>	Miss Sara Lunt
<i>Treasurer:</i>	Mr. C. J. S. Green

Gordon Childe Prize and Bequest Fund

No Gordon Childe prizes were awarded for the session.

The death of Professor Childe's sister during the session has resulted in an additional sum augmenting the capital in the Bequest Fund. The income from the Fund for the session was again applied to the purchase of equipment urgently needed by the Institute. Following a decision of the Committee of Management the major part of the income from the Fund will be used in future for Awards for the furtherance of research by members of the Institute.

Margary Fund

Eighteen students received awards to enable them to travel to Crete, Germany, Iran, Italy and Turkey.

Roman Department Fund

An anonymous gift was made to the Institute, the interest of which is to be available annually (or in exceptional circumstances biennially) to a member of the Roman Department.

TEACHING AND RESEARCH

Institute Field Course

The Easter Vacation training excavation was held at North Uist. The excavations offered a wide range of stratified sites including a wheelhouse of the Gallo-Norse period, a Bronze Age midden and stratigraphically linked stone circles. In addition photographic and survey work was undertaken on standing monuments and deserted crofts and other places of archaeological and ethnographic interest on the island were visited.

The Institute's thanks are offered to Dr. Alexander for directing the course, to Mr. Iain Crawford, co-director of the excavation and to Mr. Stewart, Mr. M. Spratling and Mr. A. Legge who contributed to the instruction.

Colloquy

The Percival David Foundation of Chinese Art held a Colloquy on Pottery and Metalwork in T'ang China in the Institute in July. Among the contributors was Mr. Hodges.

Research Seminar on Archaeology and Related Subjects

Four meetings were held during the session, dealing with the following topics:

4.11.69 'Environment of the Early Neolithic Settlements in South Central Anatolia'

Paper by: Mr. Harold R. Cohen (University of Manchester)

Chairman: Dr. C. Vita-Finzi (Department of Geography, University College London)

- 10.12.69 'Early History of Horticulture in the New Guinea Highlands'
Paper by: Dr. Jocelyn Powell and Professor Jack Golson (Research School of Pacific Studies, Australian National University)
Chairman: Mr. D. G. Coursey (Tropical Products Institute, London)
- 10.2.70 'Archaeoentomology'
Paper by: Dr. Martin Speight (Department of Botany, Westfield College, London University)
Chairman: Mr. D. R. Brothwell (Sub-department of Anthropology, British Museum (Natural History))
- 6.5.70 'The Archaeological Interpretation of Metalworking'
Paper by: Mr. M. J. Rowlands (Institute of Archaeology)
Chairman: Dr. Ian Longworth (British Museum)

As always the thanks of the Institute are due to Dr. P. J. Ucko, University College, Professor Dimbleby, Mr. Hodges and Miss S. E. Johnson for all they have done to organise the seminars.

Underwater Research Group

The year commenced with a talk by Miss du Plat Taylor given at the Institute to the University Archaeological Society. A number of members expressed interest and attended the first meeting of the Underwater Group. Twelve people began bath training and two went on sea dives in the spring.

In January Miss Honor Frost spoke to an open meeting of the group about her work in the Mediterranean.

At two meetings in May and June a constitution was formulated in order that the group might be recognised as a Union-sponsored society.

The following were elected officers for the 1970-71 session:

<i>Chairman:</i>	Mr. C. J. S. Green
<i>Secretary:</i>	Mr. C. Hill
<i>Diving Officer:</i>	Mr. D. Michaelides

The Society would like to thank Miss Taylor for all her help and advice to the group since its inception.

Seminar for Arabian Studies

At a meeting held in January 1970 it was decided to re-name the Arabian Society (founded in 1968) the Seminar for Arabian Studies. Its objects were defined as the encouragement of research into, and the dissemination of information concerning, all aspects of the history of the Arabian Peninsula. A steering committee was appointed for one year, consisting of Mr. Parr (Chairman), Professor R. B. Serjeant (Vice-Chairman), Mr. J. E. Dayton and Mr. T. C. Mitchell. Following the business meeting papers were read by Dr. Peder Mortensen (on excavating at Bahrain) and Dr. Veronica Seton-Williams (on Sinai).

On June 22nd-23rd 1970 a two-day Symposium was held in Cambridge under the auspices of the Middle East Centre. More than a dozen papers were read, some by scholars from overseas. It is hoped to publish summaries of some of these in the near future.

Association for Studies in the Conservation of Historic Buildings

During the first full year of its existence the Association has enlarged its membership to nearly 90 members and has widened the scope of its activities to include research in a project which it is hoped will be the first of many. The Council for the Care of Churches asked that a survey should be made of the results of using the electro-osmotic method of damp-proof coursing in secular buildings and non-conformist churches. An interim report is to be published imminently giving the first results.

The following papers were given during the session:

N. Harrison and R. Targett: 'The Restoration of the Library at Kenwood House'

Donovan Purcell: 'Sixteenth-century terra-cotta in East Anglia'

Dr. Peter Kidson: 'The Cathedrals of Bourges and Lincoln'

R. G. Wood: 'The Architect and Conservation'

Peter E. Locke: 'Conservation Work in Cambridge and Hertford by Donald Insall and Associates'.

In conjunction with the last paper visits were made to see the repairs in hand at the following buildings:

Trinity College Library, Cambridge

Hertford Castle

A two-day study tour was arranged at the end of April to the Lincolnshire limestone quarries. The tour was led by A. S. Ireson (mason and Secretary of The Men of Stones), Donovan Purcell, F.R.I.B.A. and F. G. Dimes, B.Sc. (geologist). Twenty members attended.

THE DEPARTMENTS

The Director again served as External Examiner for Nottingham University. He continued to advise on the ancient defences of London in the Barbican area of the City.

The following student continued to work under the Director's supervision:

M.Phil.

E. M. Holt, Miss (Faculty of Arts): Study of ancient fields (medieval) with specific reference to early estate maps in the Pennine District.

HUMAN ENVIRONMENT

<i>Professor:</i>	G. W. Dimbleby, B.Sc., M.A., D.Phil. (Oxon) (<i>A.T.</i>)
<i>Reader:</i>	I. W. Cornwall, Ph.D. (<i>A.T.</i>)
<i>Lecturer:</i>	Miss J. M. Sheldon, B.Sc. (<i>R.T.</i>)
<i>Research Assistant:</i>	M. C. D. Speight, Ph.D.
<i>Chief Technician:</i>	P. Porter
<i>Honorary Assistants:</i>	Mrs. M. Barton Mrs. H. Jones

Three students continued their Ph.D. studies during the year, namely:

- C. Banks, Mrs. (*née* Grigson) (Faculty of Science): Prehistoric cattle remains from Europe and India
- A. Kosse (Faculty of Arts): Soil investigations of 'Celtic' fields in England and Wales (joint registration with Professor Evans)
- D. Mathewson (Faculty of Arts): Weathering processes on archaeological objects

One further student was registered in the Faculty of Arts:

M.Phil.

J. P. N. Watson: The interpretation of faunal evidence.

In addition to these students, Mr. John Hollin continued his research on interglacial deposits as part of his course for the Ph.D. at Princeton University.

In the course of the year the work on molluscs and insects from archaeological sites was drawn to a close and Dr. Evans and Dr. Speight left to take up posts elsewhere. It was most unfortunate that because of the present financial stringency in universities it was not possible to incorporate these two lines of work into the structure of the department. In both cases the methods of study and interpretation had been worked out, to show the potential contribution which such studies could make to archaeology; but the department is unable to capitalize on this basic research. The department remains much indebted to the Natural Environment Research Council for providing the Research Assistantships which Dr. Evans and Dr. Speight held.

In April the department mounted an exhibition entitled 'The Countryside in 1970 B.C.' as its contribution to European Conservation Year 1970. Thanks are due to Miss M. Maitland Howard for reproducing the interpretations in visual form and to Mr. Philip Porter for his excellent photographic work. Professor Dimbleby has been called upon to give a number of outside lectures on Conservation, and in addition both he and Dr. Cornwall have, as usual spoken to archaeological societies and groups on a variety of environmental topics. Professor Dimbleby was also invited to give one of the semi-popular lectures at the Exeter meeting of the British Association for the Advancement of Science.

Perhaps the most important single piece of research completed this year has been into the environmental background of Sutton Hoo. The work has covered several seasons and will doubtless continue, but the main report has now been sub-

mitted to the British Museum. The work of the department was also featured in a B.B.C. T.V. film on Silbury Hill.

This year saw the beginning of the B.Sc. degree by course units. Three students are taking the environmental option, but as the first year is devoted mainly to basic archaeology, the full weight of the new teaching programme has not yet been felt by the department.

It was with a mixture of regret and satisfaction that the department said goodbye to the junior laboratory technician, Mr. Graham Sansom, at the beginning of the year. He had been accepted to read zoology at Royal Holloway College, London University.

The department has had the usual heavy demands for specialist advice and investigation, and has met them as far as possible. Unfortunately there is a large backlog of such work waiting to be done and it will be necessary to restrict severely the intake in the future. A discouraging aspect of this matter is the archaeological use which is made of some of the department's reports: a mere sentence in an archaeological report is an inadequate return for the many hours of laboratory work which are often involved.

Publications:

By Professor Dimbleby:

'Land Use in Goodland Townland, Co. Antrim from Neolithic Times until To-day', *Journal of the Royal Society of Antiquaries of Ireland*, 69, Pt. I, 1969, 39-53 (with others)

By Professor Dimbleby and Dr. Speight:

'Buried Soils', *Adv. of Science* 26 (1969), 203-5.

By Dr. Cornwall:

Ice Ages: Their Nature and Effects, John Baker 1970, 180 pp.

By Dr. Evans:

'Changes in the composition of land molluscan population in North Wiltshire during the last 5000 years', *Symp. Zool. Soc. Lond.* 22 (1968), 293-317.

'Land and freshwater Mollusca in archaeology: chronological aspects', *World Archaeology* 1 (1969), 170-183.

PREHISTORIC ARCHAEOLOGY

Professor: J. D. Evans, M.A., Ph.D., F.S.A. (A.T.)

Lecturers: J. d'A. Waechter, Ph.D., F.S.A. (R.T.)

F. R. Hodson, M.A., Ph.D., F.S.A. (R.T.)

J. G. Nandris, B.A., Ph.D. (R.T.)

Lecturer in Latin American Archaeology: W. M. Bray, Ph.D., M.A., F.S.A. (R.T.)
(Joint post with Institute of Latin American Studies)

Special Lecturer: T. Sulimirski, Iur.D., Ph.D.(Lwow), Hon. F.S.A.

There were 49 students in the Department. Of these, 4 were studying for the Postgraduate Diploma, 15 for the B.A., and 30 for Higher Degrees. Two of the Diploma students successfully sat the examination in June.

Teaching was also provided for 21 intercollegiate students.

The list of students registered for Higher Degrees and their subjects of research were as follows:—

Ph.D.

- I. Azoury, Mrs.: A technological and typological analysis of the Transitional and early Upper Palaeolithic levels at Ksar 'Akil and Abu Halka, Lebanon.
- G. H. A. Bankes: Some aspects of the Moche Culture of Peru.
- I. M. Crawford: Late prehistoric changes in aboriginal cultures in Kimberley, Western Australia.
- C. Doumas: Some cemeteries of the early Bronze Age in the Cyclades and their significance for the Cycladic early Bronze Age.
- A. D. Kosse: Soil investigations of 'Celtic' fields in England and Wales (joint registration with Professor Dimbleby).
- M. Lev: The Palaeolithic: a method of determining differences between assemblages.
- M. H. Newcomer: An analysis of a series of burins from Ksar 'Akil, Lebanon.
- R. R. Newell: The Mesolithic affinities and typological relations of the Dutch Bandkeramik Flint Industry.
- W. W. Phelps: The Neolithic sequence in southern Greece.
- A. P. Phillips, Miss: An analysis of the southern French Chassey culture and its relationship to the Cortaillod and Lagozza cultures.
- R. C. Reed: Cornwall in the Neolithic and Bronze Age (with a special section on the trade in Neolithic implements of Cornish source).
- H. C. Ridley, Mrs.: (Field of proposed research) The later Neolithic period in Macedonia.
- M. J. Rowlands: A study of the bronze-working industries of the Middle Bronze Age in southern Britain.
- M. G. Spratling: Southern British decorated bronzes of the late Pre-Roman Iron Age.
- D. P. Heldman: Archaeological relationship between interior and coastal regions of the Huasteca, Mexico.
- A. J. Ammerman: (Field of proposed research) Transition from Mesolithic to Neolithic period in Italy.
- K. M. Krudy, Miss: (Field of proposed research) Copper Metallurgy in South East Europe.
- N. I. P. Troike, Mrs.: (Field of proposed research) Latin American Archaeology.
- K. A. Wardle: (Field of proposed research) The Greek Bronze Age and, in particular, the areas of Epirus and Aetolia.

M.Phil. and M.A. (Old Regulations)

- G. P. Diamond: (Field of proposed research) Neolithic Crete and the connections with the Greek mainland.
- C. Dortch: A typological analysis of some late Aurignacian levels from Ksar 'Akil, Lebanon.
- N. P. Evans, Mrs. (*née* Figgis): The development of early British Neolithic with special reference to the Western Province.
- I. Harrison, Mrs. (*née* Haglund): Connections between Scandinavia, Russia and the British Isles from the Neolithic to the Early Iron Age.
- J. W. Haldane: The study of iron-work from pre-Roman sites in the south-west of England (joint registration with Mr. Hodges).
- A. Kanta, Miss: The Late Minoan IIIB period in Crete.
- A. McCord, Miss (*part-time*): (Field of proposed research) Palaeolithic archaeology—a statistical survey of an assemblage of flint tools.
- J. J. Marriott, Miss: Neolithic period in Greece.
- F. F. Petersen: The Neolithic and Bronze Age of East Yorkshire.
- J. M. Willoughby, Miss: (Field of study) Prehistoric Archaeology.
- R. G. Cooke: (Field of proposed research) Middle American Archaeology.

Mr. Crawford, Miss Haglund and Mr. Haldane submitted their theses in the course of the session and were awarded the degrees for which they were candidates.

Professor Evans gave some outside lectures and read papers to the Prehistoric Society Conference on Prehistoric Greece and the Sheffield University Conference on Bronze Age Migrations in Greece. He continued to supervise students for the Boards of Research Studies of Oxford and Cambridge Universities and acted as External Examiner for the University of Sheffield. From July to September he continued his excavations in the Neolithic settlement of Knossos.

Dr. Waechter again directed excavations at Swanscombe from June onwards.

Dr. Hodson acted as External Examiner for the University of Belfast. He was awarded a Leverhulme Research Grant to support an assistant in computing for two years, from September 1970, and was appointed to act as Scientific Secretary to the Anglo-Romanian Conference on 'Mathematics in the Archaeological and Historical Sciences' which was sponsored by the Royal Society and the Romanian Academy.

Dr. Bray collaborated with Birmingham Museum and Art Gallery in selecting and cataloguing an exhibition of prehistoric art objects from Latin America from private collections in Britain. With Dr. David Trump he led a group of Cambridge University Extra-mural students on an excursion to visit excavations and archaeological sites in Sardinia. From July to September he directed a programme of field survey and excavation in the Andes of north-east Columbia.

REPORT OF THE DIRECTOR FOR THE SESSION 1969/70

Dr. Nandris made a study tour of sites and museums in Germany, Austria, Hungary and Yugoslavia during April and May. He read a paper to the Colloquium on 'Present Problems of the *Bandkeramik*' at Székesfehérvár in May.

Publications:

By Professor Evans:

'Neolithic Knossos' Part II, *Annual of the British School of Athens*, vol. 63, 1968, 239-276 (with others).

By Dr. Waechter:

'Swanscombe 1969', *Proceedings of the Royal Anthropological Institute of Great Britain and Ireland*, 1969 83-85.

By Dr. Hodson:

'Cluster analysis and archaeology; some new developments and applications', *World Archaeology* I, no. 3 1970, 299-320.

'Classification by computer', in *Science in Archaeology*, 2nd ed. edited by Dr. Brothwell and E. S. Higgs, 649-660.

By Dr. Bray:

Ancient Mesoamerica and Pre-Colombian Mexican and Maya Art, Birmingham Museum and Art Gallery, June-July 1970, 35 pp., 33 plates.

Various reviews.

By Dr. Nandris:

'The Development and Relations of the Greek Neolithic', *Man*, vol. 5, no. 2, (1970), 192-213.

'Early Neolithic sites in the Near East and Anatolia', *Memoria Antiquitatis* I (Piatra Neamt, Moldavia), 1970.

Various reviews.

ARCHAEOLOGY OF THE ROMAN PROVINCES

Professor: D. E. Strong, M.A., D.Phil., F.S.A., (A.T.)

Lecturer: M. W. C. Hassall, M.A. (R.T.)

There were 32 students in the Department of whom 11 were registered for the B.A. degree and 22 for Post-graduate Diplomas or Higher Degrees (5 part-time). One occasional student attended internal courses and 22 intercollegiate students attended the course on Roman Britain given by the Professor and Mr. Hassall. In the course of the year 5 first-year students taking the Post-graduate Diploma were re-registered to take M.A. degrees. Of these one failed to pass the qualifying examination. The sole second-year Diploma student successfully took the examination in June.

Ph.D.

- J. P. Alcock, Miss (*part-time*): Classical cults in Roman Britain.
 A. P. Detsicas (*part-time*): Romano-British settlement in the Medway valley.
 R. Goodburn: A systematic survey of the developmental history of the Roman villa in Britain.
 J. C. Hanson, Miss: Water supply and drainage in Roman Britain.
 M. W. C. Hassall: The *Notitia Dignitatum*.
 W. H. Manning (*part-time*): Objects of iron in Roman Britain.
 S. E. Ramsden, Miss: Roman mosaics in Greece.
 M. Roxan, Mrs.: The Auxilia of the Roman Army.
 J. Sampson, Mrs.: Hellenistic and Roman Landscape Reliefs.
 P. V. Webster: Romano-British pottery of the West and North Midlands.

M.Phil.

- H. Chapman: Itineraries and posting stations.
 B. J. H. Clauson: Development of Romano-British Fora.
 S. K. Digby (*part-time*): The coin reform of Aurelian and its effect on Roman Britain.
 J. H. Greenaway, Mrs. (*part-time*): Roman settlement in the area of the Atrebatas.
 H. R. Hurst: Roman villas in the Bath area.
 M. I. Martin, Mrs.: Roman architecture.
 E. J. Sanford, Miss (*part-time*): Trade and Transport in Roman Britain.

Mr. Manning presented his thesis and was awarded a doctorate in November, 1969.

A number of outside speakers participated in the work of the Department during the year. Dr. Kent of the British Museum gave two lectures on Roman coins in the second term and Mr. Richard Reece and Miss Joanna Morris conducted a series of seminars on Roman coins and pottery respectively in the third term. Mr. H. J. M. Green gave four lectures on Roman building methods in the second term. Eleven guest speakers conducted the joint seminars with the Conservation Department on 'Roman Craftsmen and their techniques' held during the first and second terms.

The Professor gave outside lectures at the Universities of Cambridge, Durham, Exeter, London, Oxford and Southampton and elsewhere. During the Easter vacation he was guest lecturer on one of the Spring Cruises organised by the Hellenic Travellers Club. He acted as Examiner to the Boards of Postgraduate Studies at Cambridge and Durham. During the summer he spent three weeks of study travel in France, Italy and Yugoslavia.

Mr. Hassall spent part of the Easter vacation at the British School at Rome. He again acted as Assistant Field Director in the University of Long Island's excavations at Knidos during the summer, when he was accompanied by five students from the Institute.

WESTERN ASIATIC ARCHAEOLOGY

Professor: E. E. D. M. Oates, M.A., F.S.A., (A.T.)

Lecturer in Mesopotamian Archaeology: Miss Barbara Parker, F.S.A. (R.T.)

Lecturer in Palestinian Archaeology: P. J. Parr, M.A., F.S.A. (R.T.)

Lecturer in Anatolian Archaeology: J. Mellaart, B.A., F.S.A. (R.T.)

Seminar in Metallurgy and Metal Typology: Mrs. K. R. Maxwell-Hyslop, F.S.A. (R.T. Retd.)

The number of full-time students in the Department was 27, of whom three were reading for the B.A. degree and three for the Post-graduate Diploma in the Archaeology of Mesopotamia. Three students were reading for the B.A. degree and one for the Post-graduate Diploma in the Archaeology of Palestine. One student was reading for the B.A. degree and three for the Post-graduate Diploma in the Archaeology of Anatolia.

Two students were successful in the examination for the Post-graduate Diploma; one in Mesopotamian Archaeology, the other in the Archaeology of Anatolia.

Students registered for higher degrees in the Faculty of Arts were as follows:

Mesopotamia

Ph.D.

P. Razavi, Miss: Achaemenid art in the Western Provinces.

M.Phil.

D. S. Noble (*part-time*): The development of transport in ancient Mesopotamia.

Palestine

Ph.D.

M. Saghieh, Miss: Byblos in the third millennium B.C.

H. Seeden, Miss: The Phoenician standing deity or warrior figurines and related types during the second millennium B.C.

M.Phil.

J. E. Dayton: Ancient glazes in Western Asia.

D. C. Elliott, Miss: The Ghassulian culture of Palestine.

S. Helms: Early Bronze Age military architecture in Palestine.

R. Henry, Mrs.: Architecture of Palestine and Syria in the Late Bronze and Early Iron Ages.

V. Izon, Miss: Archaeological evidence for the period of the Judges.

M. Oakeshott, Miss: Bronze Age pottery of Palestine and Syria.

D. Price Williams: Application of statistical methods to some problems of the Middle Bronze Age in Palestine.

Anatolia

Ph.D.

O. Bilgi: Development and distribution of anthropomorphic figurines in Anatolia from the Neolithic to the end of the Early Bronze Age.

J. H. Pullar, Miss: Neolithic in the Zagros Mountains.

M.Phil.

W. M. N. Campion: The relations between Anatolia and neighbouring countries in the second millennium.

Miss Izon submitted her thesis during the course of the session and was awarded the M.Phil. degree.

Mr. Parr was granted leave of absence at the beginning of the year to attend the 9th International Congress of Classical Archaeology at Damascus, and also in the spring to attend the 3rd International Conference on Asian Archaeology at Bahrain, where he delivered a paper on his work in Saudi Arabia.

Mr. Mellaart spent the summer in Turkey with the aid of a Hayter Grant, preparing the publication of material from Çatal Hüyük. Miss Parker attended the 19th Rencontre Assyriologique Internationale in Munich during July. Mrs. Maxwell-Hyslop was awarded a travelling grant from the Gerald Avery Near Eastern Fellowship Fund, Oxford and visited Iraq in April, 1970.

Publications:

By Professor Oates:

'The Excavation at Tell al Rimah 1968', *Iraq* XXXII (1970), 1-26.

By Mr. Parr:

'A Sequence of Pottery from Petra', in *Near Eastern Archaeology in the Twentieth Century: Essays in Honour of Nelson Glueck* (ed. J. A. Saunders) Doubleday, New York 1970, 348-381.

By Mr. Mellaart:

Various reviews.

By Mrs. Maxwell-Hyslop:

'An illustration to a Mari inventory', *Iraq* XXXII (1970), 2.

EASTERN EUROPEAN MEDIEVAL ARCHAEOLOGY

Lecturer: D. Sturdy, M.A., B.Litt. (Joint post with the School of Slavonic and East European Studies)

During the year Mr. Sturdy conducted further research and survey work on the Dark Age field systems at Levens Park, Westmorland. In April he went on a study tour of Bohemia and in May visited Yugoslavia.

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DRAWING AND SURVEYING

Lecturer: H. M. Stewart, B.A. (R.T.)

The number of students attending the course was 38 (21 First Degree, 4 Higher Degree, 3 Diploma, 5 Conservation, 5 Occasional).

The Easter Field Course, held in the Outer Hebrides, gave useful experience in surveying under weather conditions hardly envisaged in text-books.

A newly incorporated introduction to Photogrammetry included a lecture tour of the Department of Photogrammetry, University College, conducted by Mr. E. Wickens of the Department with the kind co-operation of Professor E. H. Thompson.

As in previous years a course in Archaeological Surveying was given in the Extra-Mural Department during the third term.

Publications:

By Mr. Stewart:

Various reviews.

PHOTOGRAPHY

Senior Technician: Mrs. M. V. Conlon

Fifty-two students attended the course, 36 First degree, Diploma and Higher degrees and 16 Conservation.

By the kind permission of the Principals students were again allowed to photograph at various times at the Guildhall, Natural History and Victoria and Albert Museums and at Westminster Abbey and the Tower of London. Students again practised photographing an excavation at the Roman Baths site in Billingsgate by kind permission of Mr. Marsden. Prints were accepted for recording.

During the Easter training field course in the Outer Hebrides, photographic equipment was provided by the Department, for which senior students were responsible, although it was for the use of all students.

Mr. Clement Morris undertook for one month the photography for Professor Evans' excavation at Knossos.

The annual exhibition included photographs and drawings taken in the Hebrides and on other excavations. Museum techniques, research on the microscope and infra-red and ultra-violet photography were also demonstrated.

CONSERVATION

Senior Lecturer-in-charge: Miss I. Gedye, B.A., F.I.I.C. (R.T.)

Senior Lecturer: H. W. M. Hodges, F.I.I.C. (R.T.)

Lecturer: Miss P. Pratt

Honorary Assistant: Miss A. Plowden, F.I.I.C.

Thirty students attended courses in the Department of whom 23 followed the Conservation course, 7 being in their second year and 6 part-time on release from the British Museum, Horniman Museum, London Museum and the Ministry of Works.

The Department's thanks are again due to Dr. A. E. Werner, Keeper of the Research Laboratory of the British Museum, both for acting as External Examiner and for help in other ways; and also to Mr. Baynes Cope of the same Department for instruction in the technology, decay and conservation of paper. The help is acknowledged of the British Museum, the London Museum, the Oxford City and County Museum, the Horniman Museum and the Winchester Excavations Laboratory in taking first-year students during the Christmas and Easter vacations. The students derive great benefit from the experience gained in this way.

As in previous years work of instructional value to students was undertaken for a number of museums and institutions. Work continued on the Etruscan bronzes damaged in the floods in Florence and on the transferred painting discovered under the effigy of Archbishop de Gray in York Minster.

Miss M. Cebulla, Mr. T. Govier (British Museum), Miss B. Hall, Mr. D. Lee (British Museum), Mr. G. Morgan (Ministry of Works), Mr. K. Patterson, Miss B. Pough and Miss E. Pye were awarded the Diploma in Conservation. Miss Cebulla, Miss Hall, Miss Pough and Miss Pye obtained Distinction.

Miss Gedye and Mr. Hodges lectured on the examination and conservation of pottery for an Extra-mural course. Mr. Hodges attended in June a meeting in the Rome Centre for the Conservation and Restoration of Cultural Property of teachers in conservation to discuss future UNESCO plans for education in conservation. In July he visited Nauplia (Navplion) to make a technological study of figures from Mycenae. In August and September he went at the invitation of the Ford Foundation to Pakistan to report on conservation requirements in that country's museums.

Miss Pratt spent the summer vacation on the British Institute at Ankara's excavation at Asvan to experiment in the use of synthetic resins in field conservation.

Miss Plowden continued her treatment of new acquisitions to the Rockefeller collection. Students benefitted from her work on a number of antiquities the most interesting of which were the bronze head of a Roman emperor, 17th century painted organ pipes from Framlingham and the removal and mounting of an Anrap mosaic for the Victoria and Albert Museum.

Summer vacation work was carried out by students in Italy, Turkey, Greece, Crete and England (Dragonby and Swanscombe).

Publications:

By Mr. Hodges:

Technology in the Ancient World, Allan Lane The Penguin Press, London and Alfred Knopf, New York, 1970, 260 pp.

CONSERVATION OF HISTORICAL MONUMENTS

Lecturer-in-Charge: W. A. Eden, O.B.E., M.A., F.S.A., F.R.I.B.A. (English
(part-time) Architecture from 1540)

Lecturers: B. Ashley Barker, F.S.A., F.R.I.B.A. (Law relating to
(part-time) Ancient Monuments and Historic Buildings)

Mrs. M. P. G. Draper, B.A., F.S.A. (Documentary Sources
—Local and Private Records)

In view of the continuing uncertainty regarding the future of the course no new students were accepted for the Session. The principal aim, during the Session, was therefore to meet the Institute's obligations towards the three second-year students (who entered the Department in October 1968). The last examination under the present regulations will be held in December, 1970.

The absence of a first year made it necessary to dispense, regretfully, with the services of Dr. Peter Kidson (Courtauld Institute) as lecturer in English Architecture, 597-1540, and of Mr. Norman Harrison (Diagnosis and Treatment of Structural Faults in Buildings). Dr. Kidson and Mr. Harrison had participated in the course for only one year; Sir John Summerson signified a wish to retire after seven years of generous service and the Lecturer-in-Charge accepted responsibility for the course in English Architecture from 1540 for one year as a temporary arrangement pending decisions as to the future, when new appointments will be necessary. In the meantime Mr. Eden has agreed to discharge, in an honorary capacity, such of the functions of the Lecturer-in-Charge as may be required of him.

Mr. Harrison completed the restoration of four houses of the early eighteenth century in Albury Street, Deptford. Mr. Ashley Barker was appointed successor to Mr. Eden on the latter's retirement from the post of Surveyor of Historic Buildings to the Greater London Council.

Publications:

By W. A. Eden and Mrs. Draper:

Marble Hill House and its Owners (Greater London Council, 1970)

By W. A. Eden:

'South Dalton, Yorkshire' in *The Country Seat: Studies in the History of the British Country House presented to Sir John Summerson on his sixty-fifth Birthday*, 1970.

INSTITUTE OF ARCHAEOLOGY

LIBRARY

Librarian: Miss J. du Plat Taylor, F.S.A.
Assistant Librarians: Miss G. Talbot, M.A., A.L.A.
 Miss H. M. Bell, B.A.
Collections Clerk: Miss J. Philips, B.A.

With the growth in numbers due to the new intake of first degree students, the routine work of the library was very much increased. The reading room was frequently full and the lecture room next to the ante-room was taken over as an additional reading room.

For the month of September Miss Belinda Barrett and Miss Susan Claxton from Leeds Polytechnic worked in the library as part of the practical training for their Diploma in Librarianship.

During the summer Miss Taylor continued her excavations in southern Italy: Miss Talbot joined Dr. Isserlin's excavations at Motya and Miss Bell visited Greece.

The following is a summary of the additions made during the year:

<i>Books</i>	326	<i>Pamphlets</i>	495
Exchanged	79	Exchanged	104
Presented	96	Presented	195
Purchased	151	Purchased	196
<i>Periodicals</i>	495	<i>Volumes bound</i>	167

Volumes lent totalled 4,989, the highest month being October (709) and the lowest August (139). Thirty-nine works were borrowed from outside libraries and 65 lent.

The following have presented books, periodicals and pamphlets:

Dr. P. B. Adamson; Dr. J. Alexander; H. Alimen; A. ApSimon; J. Ashdown; F. T. Barr; Professor Margarete Bieber; Mrs. Biro; I. Blake; Dr. W. M. Bray; British Archaeological Association; British School of Archaeology at Jerusalem; H. Bruce; L. Butler; Gordon Childe Bequest; Christchurch, Canterbury Museum; Mrs. P. M. Christie; Professor J. Desmond Clark; R. J. Clarke; P. A. Clayton; H. Cleere; H. D. Colt; Dr. J. D. Cowen; Professor G. W. Dibleby; C. Doumas; Editor of *Endeavour*; Professor J. D. Evans; Dr. Per Fett; D. H. French; French Embassy; P. S. Garlake; Professor P.-S. Giot; Professor W. F. Grimes; Gulbenkian Foundation; Dr. D. B. Harden; G. L. Harding; R. F. Heizer; Professor C. F. W. Higham; H. W. M. Hodges; Dr. F. R. Hodson; O. Holm; J. Holmes; A. Invernizzi; Israeli Embassy; G. Kapitän; L. Keen; Dr. K. M. Kenyon; A. Kosse; A. D. Lacaille; Professor D. M. Lang; K. O. Law; London University Library; Miss E. M. Macnamara; F. G. Maier; Dr. F. Malekzadeh; R. J. Mason; J. V. S. Megaw; J. Mellaart; Mexico I.N.A.H.; G. R. Morton; Professor H. L. Movius Jr.; C. R. Musson; Dr. J. G. Nandris; A. Nibbi; Northamptonshire County Council; Dr. K. P. Oakley; H. Ogawa; Dr. E. D.

REPORT OF THE DIRECTOR FOR THE SESSION 1969/70

Oren; A. N. Papageorgiou-Venetas; P. J. Parr; D. Philips; C. D. Pobol; Miss Pollard; N. Postgate; Pullman, College of Engineering Research Division, State University of Washington; E. Pyddoke; Dr. C. Renfrew; Schweizerischer Gesellschaft für Urgeschichte; J. D. Seddon; Dr. T. C. Sharma; H. L. Sheldon; Royal Society of Arts; Professor D. E. Strong; R. Summers; Professor T. Sulimirski; Miss G. C. Talbot; Miss J. du Plat Taylor; J. E. S. Thompson; Miss L. Vagnetti; Dr. J. d'A. Waechter; Dr. G. J. Wainwright; S. S. Weinberg; Miss A. C. Western; Sir Mortimer Wheeler; W. Wirgin; G. R. H. Wright; J. J. Weymer.

UNIVERSITY OF LONDON

INSTITUTE OF ARCHAEOLOGY

Twenty-eighth
ANNUAL REPORT

1 August 1970—31 July 1971

COMMITTEE OF MANAGEMENT

THE VICE-CHANCELLOR (Professor Sir Brian Windeyer)

THE CHAIRMAN OF CONVOCATION (Sir Charles Harris)

THE PRINCIPAL (Sir Douglas Logan)

The Director of the Institute (Professor W. F. Grimes)*

The Director of the Courtauld Institute of Art (or other representative) (Professor G. Zarnecki)

The Director of the Institute of Classical Studies (Professor E. W. Handley)

The Director of the Warburg Institute (Professor E. H. J. Gombrich)

The President of the Council for British Archaeology (or other representative) (Dr. D. B. Harden)

The President of the Prehistoric Society (or other representative) (Dr. J. D. Cowen)*

The President of the Society of Antiquaries (or other representative) (Sir Mortimer Wheeler)

Recognised or Appointed Teachers in cognate subjects, or Heads of Schools or Institutes in the University:—

Professor G. H. Bolsover	Professor R. A. Humphreys
Mr. J. G. Burton-Page	Professor H. S. Smith
Professor P. E. Corbett*	Professor W. Watson
Professor Eugénie Henderson	(One vacancy)

Two members of the non-professorial staff nominated by the non-professorial staff through the Academic Board:—

Dr. W. M. Bray	Dr. F. R. Hodson
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The four Professorial Heads of Department of the Institute (ex officio):—

Professor G. W. Dimbleby*	Professor E. E. D. M. Oates
Professor J. D. Evans	Professor D. E. Strong

Five other persons:—

Dr. R. L. S. Bruce-Mitford	Lord Fletcher
Professor J. G. D. Clark	(One vacancy)
Mr. A. R. Dufty	

Lord Fletcher acted as Chairman throughout the session.

*Members of the Financial Sub-Committee

ADMINISTRATION

<i>Director:</i>	Professor W. F. Grimes, C.B.E., M.A., D.Litt., F.S.A., F.M.A. (A.T.)*
<i>Secretary and Registrar:</i>	E. Pyddoke, F.S.A.
<i>Director's Secretary:</i>	Mrs. M. Hunt
<i>Senior Administrative Assistant:</i>	Miss J. V. Brown
<i>Administrative Assistants:</i>	Miss S. E. Johnson
	Mrs. T. S. Batchelor (until 30th September, 1970)
	Miss D. Gaze (from 26th October, 1970)
	Miss N. Marskell (until 6th January, 1971)
	Mrs. M. P. McKenzie (from 22nd March, 1971)
	Mrs. A. H. Rainbow (until 19th February, 1971)
	Mrs. M. P. Wyatt (from 22nd March, 1971)

Staff matters

The Director continued to serve as Chairman of the Royal Commission on Ancient Monuments in Wales and Monmouthshire and as a member of the Royal Commission on Historical Monuments (England) and the Ancient Monuments Boards for England and for Wales. He continued as Chairman of the Field Studies Council, Council for British Archaeology Committees on Ancient Agriculture and Industrial Archaeology, the London Topographical Society, the Deserted Medieval Villages Research Group, the Nene Valley Research Committee and the Milton Keynes Research Committee and the Committee on Resources within the Council for Environmental Education. He served as a member of the Conference on the Training of Architects in Conservation and the Conservation Liaison Committee and was appointed a member of the Council of the National Trust and the British Trust for Conservation Volunteers. He continued to act as Honorary Treasurer of the Council for British Archaeology.

Professor Evans continued to serve on the Advisory Committees of the Horniman Museum and on Archaeology of the Gulbenkian Foundation. Dr. Hodson continued to serve on the C.B.A. Committee for Scientific Research and Panel on Grants for Publications and on the Editorial Board of *World Archaeology*.

Professor Strong served on the Councils of the Society of Antiquaries, the Royal Archaeological Institute and the Roman Society, and on the Executive Committee of the Council for British Archaeology. He again acted as Chairman of the Society for Libyan Studies. Mr. Hassall was elected a Fellow of the Society of Antiquaries. He represented the Institute on the Chelmsford Excavation Committee. Mr. Reece served on the Councils of the Royal Numismatic Society and Bristol and Gloucestershire Archaeological Society. He represented the Institute on the Colchester Excavation Committee.

*A.T. Appointed Teacher, R.T. Recognised Teacher of the University of London throughout.

Mr. Parr was granted leave-of-absence for the 1971/72 session to take up an appointment at the Oriental Institute, Chicago University.

Mr. Hodges was elected to the Council of I.I.C. as Hon. Treasurer.

Mr. P. G. Dorrell and Mr. M. Newcomer were appointed Research Assistants for the session in the departments of Human Environment and Prehistory respectively. Mr. Dorrell was appointed Lecturer in the Photographic Department to take up the appointment at the beginning of the 1971/72 session.

Miss B. Barrett resigned from her post as Library Assistant at the end of the session and will join the Institute as a student reading for a first degree in Archaeology in 1971/72.

Mrs. T. S. Batchelor, Miss N. Marskell and Mrs. A. H. Rainbow resigned from and Miss D. Gaze, Mrs. M. P. McKenzie and Mrs. M. P. Wyatt joined, the administrative staff.

Public Lectures and Exhibitions

The Special University Lectures in Archaeology were given in May by Professor F. Bordes of the University of Bordeaux. Professor Bordes lectured on 'Recent progress in Palaeolithic archaeology in south west France' and 'Aims and limits of morphological typology'.

Other lecturers during the session included Mr. E. Heliopoulos (Athens), Emir M. Chéhab (Director-General of Antiquities, Lebanon), Professor Earl Swanson (Idaho State University), Dr. B. Rothenberg (Tel-Aviv University), Dr. Jiří Břen (National Museum, Prague), Dr. G. E. Connah (University of Ibadan), Mr. L. H. Barfield (Birmingham University), Mr. J. Mellaart, Dr. J. d'A. Waechter, Dr. W. M. Bray and Mr. G. Cadogan. The lectures by Mr. Heliopoulos and Mr. Cadogan were given in association with the Institute of Classical Studies.

Exhibitions mounted included a second showing of 'The Countryside in 1970 B.C.'; 'Celtic Oppida in Czechoslovakia'; Byzantine Churches in South Mani'; archaeological photographs taken by the late Mr. M. B. Cookson; displays illustrating Dr. Waechter's Swancombe excavation; the British Expedition to the Air Mountains, central Sahara; the annual display of work produced by students in the Photographic Department; and an exhibition illustrating aspects of Industrial Archaeology mounted by the Council for British Archaeology.

The Institute continued to work in close co-operation with the Extra-Mural Department in teaching for the courses leading to the University Extension Diploma, with several courses being held in the building and lecturers, both here and elsewhere, including past and present students of the Institute. The Director and Mr. P. J. Parr again acted as External Examiners.

Students

The total number of students registered during the session was 183; in addition 56 Inter-collegiate students attended courses. Of Institute students 4 were registered for Diplomas; 72 for Higher Degrees (11 part-time); 14 for M.A. and M.Sc. degrees;

and 54 for B.A. and B.Sc. Hons. degrees. 29 students were registered for the course in Archaeological Conservation (8 part-time) and 11 Occasional students attended lectures and used the facilities of the Institute.

One student was awarded the Diploma in the Archaeology of Western Asia (A. Mesopotamia). Six students were awarded the B.A. Hons. degree in Archaeology: The Archaeology of the Roman Provinces (1 First Class, 5 Upper Second Class) and 7 the B.A. Hons. degree in Archaeology: Prehistoric Archaeology and Human Environment (1 First Class, 3 Upper Second Class, 2 Lower Second Class and 1 Third Class).

Of the Higher Degree students 38 were registered for the Ph.D. degree full-time (one in the Faculty of Science) and 3 part-time. Twenty-three were registered for the M.Phil. full-time and 8 part-time. Ph.D.s were awarded to Miss H. Seeden (Western Asia: Levant) in September, R. R. Newell (Prehistoric Department) in October, Miss J. C. Hanson (Roman Department) in November, M. J. Rowlands (Prehistoric Department) in January, D. P. Heldman (Prehistoric Department) in April, Miss A. P. Phillips (Prehistoric Department) in June and M. Phil. degrees to Miss A. McCord (Prehistoric Department) in November, F. F. Petersen (Prehistoric Department) in January and P. V. Webster (Roman Department) in June.

Six students qualified for the Institute's Diploma in Conservation (two with a Mark of Distinction).

Twenty-two countries were represented by 56 students registered at the Institute as follows: Aden, 1; Australia, 1; Canada, 3; Czechoslovakia, 1; Denmark, 1; Egypt, 1; Germany, 1; Greece, 3; Holland, 1; Hungary, 1; India, 1; Italy, 3; Jordan, 1; Lebanon, 3; New Zealand, 1; Nigeria, 2; South Africa, 2; Switzerland, 2; Thailand, 1; Turkey, 4; U.S.A., 21.

Students' Union

The Union continues to integrate its activities into Institute life as continuing liaison with the staff and increased social events for the students demonstrate. In the former field student representatives again attended Academic Board meetings and other committees; in the latter two very well attended parties took place. Notable in the Easter term was the Ladies v. Gentlemen football match in Regent's Park: the result is still hotly disputed. One new activity followed the recommendations of a memorandum about the previous Easter Field Course; a questionnaire prior to this year's Field Course was distributed which eased much of the detailed work involved in the organisation and administration. The new Folk Club provides a unique line in light entertainment while the Music Society has its own varied programme.

A constitutional change means that the officers run from March and not from October. The following were officers during the year:

<i>President:</i>	Clem Morris	David Williams
<i>Secretary:</i>	John Chapman	Richard Kelly
<i>Treasurer:</i>	Christopher Green	Al Morton

Gordon Childe Prize and Bequest Fund

Gordon Childe Prizes for 1970/71 were awarded to Mr. C. J. S. Green (Department of the Archaeology of the Roman Provinces), Mr. I. R. Hodder (Prehistoric Department) and Miss L. E. Weier (Conservation Department).

Awards from the Gordon Childe Bequest Fund were made to Mr. Mark Newcomer (Department of Prehistory) to enable him to continue his research on the statistical analysis of palaeolithic material from Ksar Akil, Lebanon; and to Mr. T. F. C. Blagg (Department of the Archaeology of the Roman Provinces) for research on Roman architectural decoration.

Margary Fund

Six students received awards to enable them to travel to Crete, Turkey and the Congo.

Roman Department Fund

A Roman Department Prize for 1971 was awarded to Miss S. E. Cook.

TEACHING AND RESEARCH

Institute Field Course

The Easter Vacation training excavation was held at Levens Park, Westmorland by kind permission of Mr. O. R. Bagot. The excavation was directed by Mr. Sturdy and instruction was given by the Director, Mr. Glover, Mr. Stewart, Mr. Price-Williams and Dr. Limbrey.

The summer field-course was centred on Letterston, Pembrokeshire under the direction of Professor Dimbleby and the Director with Dr. Cornwall, Miss Sheldon and Mr. Hassall participating.

Colloquy

The Percival David Foundation of Chinese Art held a second Colloquy at the Institute, this time taking as the subject Mahayanish Art after A.D. 900.

Research Seminar on Archaeology and Related Subjects

One evening meeting was held in the session:

10.11.70 'Settlement, mobility and territory in Bronze Age Wessex'

Paper by: Mr. A. Fleming (University of Sheffield)

Chairman: Mr. M. Bloch (London School of Economics)

No other meetings were held because of preoccupation with the three-day meeting on 'Settlement patterns and urbanisation'. This took place on 5th, 6th and 7th December and more than eighty scholars from various disciplines contributed papers. An overflow television room enabled a further hundred people to listen to the discussion. The papers offered to the Seminar meetings were revised in the light of discussion and are now in press. They will be published in the new year under the title of *Man, Settlement and Urbanism*.

The institute's thanks are again due to Dr. P. J. Ucko, University College London, Professor Dimbleby and Miss Johnson for help in organising the Seminar.

Underwater Research Group

The Group has fallen into abeyance having failed to achieve Union sponsorship because of inability to agree upon a constitution. It is hoped that a revival may occur in the 1971-72 session.

Seminar for Arabian Studies

Following the successful seminar at Cambridge in June, 1970, the 1971 meeting was held at the Oriental Institute, Oxford on September 22nd and 23rd. This was very well attended with scholars from as far afield as Melbourne, Toronto, Abu Dhabi, Kuwait and Bahrein as well as from Europe.

The Society is now well established and internationally known as a body for the promotion and study of all aspects of the history of the Arabian Peninsula.

The Committee of Mr. P. J. Parr, Professor R. B. Serjeant, Mr. T. C. Mitchell and Mr. J. E. Dayton (Honorary Secretary) was confirmed in office for a further year and Professor A. L. Beeston and Professor E. Ullendorff appointed to it.

The proceedings of the 1970 seminar were printed and are now available.

The following papers were read and will be published:

1. Dr. J. C. Wilkinson: Irrigation Systems in South-east Arabia
2. Mr. M. Rice: A new grave complex at Al Hajjar, Bahrein
3. Mr. G. R. Hawting: The relationship between the Umayyads and the Hejaz
4. Professor A. L. Beeston: Pliny's Gebbanitae
5. Dr. F. V. Winnett (Toronto): An Expedition to Hail, 1967
6. Mrs. F. Heard: The Gulf States and Oman in transition
7. Mr. J. E. Dayton: The pottery of Edom and of Midian
8. Dr. I. Durrani (Amsterdam): The Archaeology of Bahrein
9. Professor W. Lambert: Nabonidus and Arabia
10. Dr. B. Isserlin: Hamito-Semitic Origins; Arabia and the early home of the Semites
11. Professor W. Dostal (Berne): Field Research in North Yemen, 1971.

Association for Studies in the Conservation of Historic Buildings

The year has been one of consolidation rather than significant growth as the Association established the procedures by which its regular business would be carried out: the Constitution, the meetings and the Newsletter. Although the course at the Institute has been suspended, the Association has been taking an active part in the work of the Conference for Training Architects in Conservation, and has stressed the need for multi-disciplinary education.

The following papers were given during the year:

Richard Hare: 'Conservation in Europe'

Mrs. E. Fawcett: 'Attitudes to Historic Buildings from 500 B.C. to 1970 A.D.'
Robert Chitham: 'An approach to survey and policy in Conservation Areas, with particular reference to Clerkenwell Green, Islington'

Cecil Hewett: 'Medieval Carpentry I: Merton College, Oxford, and joint-dating in Essex churches'

Medieval Carpentry II: Structural carpentry in the Medieval house'.

In addition to these, visits were made as follows:

Tour of houses and barns in the Coggeshall area in connexion with Cecil Hewett's second paper; Kings Lynn; (Thoresby College, Hampton Court, Repairs and conversion at the Hanseatic warehouse, Red Mount Chapel); York (Repairs at the Minster, and associated workshops. The Esher Report. Churches of St. Martin-le-Grand, and St. Michael, Spurriergate): this visit lasted $2\frac{1}{2}$ days and was arranged with the help of the Institute of Advanced Architectural Studies at York.

THE DEPARTMENTS

The Director continued to advise on the ancient defences of London in the Barbican area of the City.

The following student continued to work under the Director's supervision:

M.Phil.

E. M. Holt, Miss (Faculty of Arts): Study of ancient fields (medieval) with specific reference to early estate maps in the Pennine District.

Publications:

'The Temple of Mithras in Walbrook London', *Britannia Romana*, Rome 1971, 9 pp.

Academic and other changes added materially to the work of the registry and administrative staff during the session, in particular in the institution for the first time of examinations for first degree students, the introduction of a new accounting system, and the modification of the Institute's accommodation to provide for increases in both staff and student numbers.

HUMAN ENVIRONMENT

<i>Professor:</i>	G. W. Dimbleby, B.Sc., M.A., D.Phil. (Oxon) (<i>A.T.</i>)
<i>Reader:</i>	I. W. Cornwall, B.A., Ph.D. (<i>A.T.</i>)
<i>Lecturer:</i>	Miss J. M. Sheldon, B.Sc. (<i>R.T.</i>)
<i>Chief Technician:</i>	P. I. Porter
<i>Junior Technician:</i>	N. V. P. Syers
<i>Honorary Assistants:</i>	Mrs. M. Barton Mrs. H. Jones

The following students in residence were registered for higher degrees:

REPORT OF THE DIRECTOR FOR THE SESSION 1970/71

Ph.D.

A. Kossé (Faculty of Arts): Soil investigations of 'Celtic' fields in England and Wales (joint registration with Professor Evans).

M.Phil.

J. P. N. Watson: Interpretation of faunal evidence

P. Dorrell: Geomorphology and Settlements in Southern Italy

In addition one student was registered for the M.Sc. degree.

J. Hollin continued his work on interglacial deposits as part of his research for the Ph.D. at Princeton University. He returned to Princeton to take up a permanent appointment in January, 1971.

Miss Sally Kirk (University College, Geography Department) started work on her Ph.D. She is jointly supervised by Dr. David Harris and Professor Dimbleby in her studies of early agriculture.

During the year the first specialised courses in Human Environment in the first degree course were given and examined; these constitute the second year of the three-year degree.

Professor Dimbleby and Dr. Cornwall gave a number of lectures to student and other societies in various parts of the country. Dr. Cornwall was signally honoured by the Geologists' Association who invited him to give the Henry Stopes lecture for 1970. His subject was 'Geology and Early Man in Central Mexico' and the paper will be published in due course. Professor Dimbleby continued to be involved with lectures and committees connected with European Conservation Year. The Department's exhibition 'The Countryside in 1970 B.C.' was staged at the Institute for a second time; it was displayed in addition in several other parts of the country.

Some progress was made in disposing of the backlog of specialist investigations on various sites; a number of determinations, some relating to samples submitted several years ago, still unfortunately remain to be made.

Publications:

By Professor Dimbleby:

'The Ancient and Ornamental Woods of the New Forest', *Ecologist* Vol. I 9, p. 16.

By Dr. Cornwall:

'Outline of a stratigraphical "bridge" between the Mexico and Puebla basins Part 2', *Bull. Inst. Arch.* 8/9 (1970), 1-54.

PREHISTORIC ARCHAEOLOGY

Professor:

J. D. Evans, M.A., Ph.D., F.S.A. (*A.T.*)

Lecturers:

J. d'A. Waechter, Ph.D., F.S.A. (*R.T.*)

F. R. Hodson, M.A., Ph.D., F.S.A. (*R.T.*)

J. G. Nandris, B.A., Ph. D. (*R.T.*)

I. C. Glover, B.A.

INSTITUTE OF ARCHAEOLOGY

Lecturer in Latin American Archaeology: W. M. Bray, M.A., Ph.D., F.S.A. (R.T.)
(Joint post with Institute of Latin American Studies)

Special Lecturer: T. Sulimirski, Iur.D., Ph.D. (Lwow), Hon. F.S.A.

There were 55 students in the Department. Of these 24 were studying for the B.A., one for the B.Sc. and 28 for Higher Degrees. Seven students were awarded the B.A. degree, one with First Class Honours. Two Full-Time Occasional students attended courses. Teaching was also provided for 15 intercollegiate students.

Students registered for Higher Degrees were in residence and their subjects of research were as follows:

Ph.D.

I. Azoury, Mrs: A technological and typological analysis of the Transitional and early Upper Palaeolithic levels at Ksar 'Akil and Abu Halka, Lebanon.

G. H. A. Bankes: Some aspects of the Moche Culture of Peru.

D. P. Heldman: Relationships of the Rio Verde Valley, San Luis, Potosi, Mexico and the Huasteca.

E. A. F. Kendall, Miss: (Field of proposed research) Inca architecture.

A. D. Kossé: Soil investigations of 'Celtic' fields in England and Wales (joint registration with Professor Dimbleby).

M. Lev: The Palaeolithic: a method of determining differences between assemblages.

M. H. Newcomer: An analysis of a series of burins from Ksar 'Akil, Lebanon.

M. J. Rowlands: A study of the bronze-working industries of the Middle Bronze Age in southern Britain.

M. G. Spratling: Southern British decorated bronzes of the late Pre-Roman Iron Age.

M.Phil.

M. C. Anderson, Miss: (Field of proposed research) Archaeology of Eastern Europe.

P. Charoenwongsa: (Field of proposed research) Prehistory of South-East Asia.

F. M. A. Healy, Miss: (Field of proposed research) Synthesis and filling-out of available evidence for the East Anglian Neolithic and its British and continental affinities.

A. McCord, Miss: (*part-time*) The development of the Levallois Technique in the Handaxe industries of southern Britain.

J. H. Marriott, Miss: (Field of proposed research) The Neolithic period in south-east Europe.

During the session the Ph.D. degree was awarded to the following students:

G. H. A. Bankes, D. P. Heldman, R. R. Newell, Miss A. P. Phillips, R. C. Reed and M. J. Rowlands. The M.Phil. degree was awarded to F. F. Petersen and Miss A. McCord.

REPORT OF THE DIRECTOR FOR THE SESSION 1970/71

Professor Evans completed his new series of Neolithic excavations at Knossos during August and September. In February he lectured to the Annual Meeting of the British School at Athens on the results of the two seasons. He also gave a number of other outside lectures. During the Easter Vacation he paid a study visit to Portugal to examine sites in the Alto Alemtejo with a view to excavation projects and in May he spent two weeks in Malta and Gozo guiding members of the Scandinavian Archaeological Society, SKALK, round the antiquities. He continued to act as External Examiner for Sheffield University.

Dr. Waechter again directed excavations at Swanscombe from June.

Dr. Hodson acted as Scientific Secretary at the Anglo-Romanian Conference on 'Mathematics in the Archaeological and Historical Sciences' at Mamaia in September, and presented a paper on 'Taxonomy in Archaeology'. He also presented invited papers at the Edinburgh Symposium on 'The New Archaeology' and at the Southampton Hillforts Conference. He acted as External Examiner in Archaeology at the Queen's University, Belfast.

Dr. Bray was invited by the Royal Anthropological Institute to give the 1971 Curl Lecture. He also presented a paper at the Research Seminar on Settlement Patterns and Urbanization.

Dr. Nandris attended the Anglo-Romanian Conference on 'Mathematics in the Archaeological and Historical Sciences' at Mamaia. In July he took a survey team to Yugoslav Macedonia, with members from London and Cambridge Universities. Mr. Glover attended the 28th International Congress of Orientalists in Canberra in January and read a paper there on 'Fossil Animals and Flaked Stone Industries in Wallacea with especial reference to Timor'. Later in the year he presented a paper on 'Late Stone Age traditions in South East Asia' at the Conference of South Asian Archaeologists at Cambridge.

Mrs. Rosalie Evnine was appointed in October Research Assistant in Computing to Dr. Hodson, financed by the two-year grant from the Leverhulme Foundation, which was reported last year.

Miss Lucia Vagnetti of the Centro di Studi Micenei ed Egeo-Anatolici, Rome held the Association for Cultural Exchange Archaeological Fellowship at the Institute during the year. She attended a number of courses as well as working on her own research.

Publications:

By Professor Evans:

The Prehistoric Antiquities of the Maltese Islands. Athlone Press 1971, 260 pp., 70 plates.

By Dr. Waechter:

'Swanscombe 1970', *Proceedings of the Royal Anthropological Institute of Great Britain and Ireland* (1970), 43-49.

By Dr. Hodson:

'Three Iron Age brooches from Hammersmith', *British Museum Quarterly* XXXV (1970), 50 ff.

'Mathematics in Archaeology and History' (with D. G. Kendall), *Antiquity* XLV, 177 (1971), 55 ff.

By Dr. Bray:

Dictionary of Archaeology (with D. Trump), Allen Lane (Penguin Press) 1970, 269 pp.

'An Archaeological Sequence from the vicinity of Buga, Colombia' (with M. E. Moseley), *Nawpa Pacha* 7-8 (1969-1970), 85-103.

By Dr. Nandris:

'Ground water as a factor in the First Temperate Neolithic Settlement of the Körösregion', *Zbornik* VI, the National Museum, Belgrade, 1970, 59-71.

By Mr. Glover:

'Prehistoric Research in Timor', *Aboriginal Man and Environment in Australia*, Canberra 1971, 158-181.

'Pleistocene flaked stone tools from Timor and Flores' (with E. A. Glover) *Mankind* 7 (1970), 188-190.

Various reviews

By Mr. Newcomer:

'Conjoined Flakes from the Lower Loam, Barnfield Pit, Swanscombe', *Proceedings of the Royal Anthropological Institute of Great Britain and Ireland* (1970), 51-59.

ARCHAEOLOGY OF THE ROMAN PROVINCES

Professor: D. E. Strong, M.A., D.Phil., F.S.A. (A.T.)

Lecturers: M. W. C. Hassall, M.A., F.S.A. (R.T.)

R. M. Reece, B.Sc., F.S.A.

There were 41 students in the Department, of whom 14 were registered for the B.A. degree, 7 for the M.A., and 20 for other Higher Degrees (6 part-time). One occasional student attended internal courses and 24 intercollegiate students attended the course on Roman Britain given by the Professor and Mr. Hassall who, accordingly, continued to serve on the Board of Examiners in History, Classics and Education. Of the 6 third-year first-degree students who successfully took their B.A. examination in June, one was awarded first-class Honours.

Higher Degree students in residence are listed below:

Ph.D.

J. P. Alcock (Miss) (*part-time*): Classical cults in Roman Britain.

A. P. Detsicas (*part-time*): Romano-British settlement in the Medway valley.

R. Goodburn: A systematic survey of the development and history of the Roman villa in Britain.

S. E. Ramsden, Miss: Roman mosaics in Greece: the mainland and the Ionian Islands.
M. Roxan, Mrs.: The Auxilia of the Roman Army.
J. Sampson, Mrs.: Hellenistic and Roman Landscape Reliefs.

M.Phil.

J. Boutelle: (Field of proposed research) Etruscan building methods.
R. L. Bradley: N. E. England in the Late Roman and sub-Roman periods.
H. Chapman: Itineraries and posting stations.
B. J. H. Clauson: Development of Romano-British Fora.
S. K. Digby (*part-time*): The coin reform of Aurelian and its effect on Roman Britain.
J. H. Greenaway, Mrs. (*part-time*): Roman settlement in the area of the Atrebates.
M. I. Martin, Mrs.: Roman Spain.
J. L. Morris, Miss: The pottery of Roman London.
E. J. Sanford, Miss (*part-time*): Trade and transport in Roman Britain.
H. L. Sheldon (*part-time*): The Roman pottery industry in the counties bordering London.

Miss Hanson presented her thesis in November and was awarded a doctorate. Mr. Webster presented his thesis in June and was awarded an M.Phil. One student registered for a Ph.D. and one for an M.Phil. had their registrations cancelled.

Fifteen guest speakers spoke at the joint seminars with the Conservation Department on Roman Craftsmen and their Techniques held during the first and second terms, while the Roman pottery seminar was conducted mainly by M.Phil. students in the Department during the summer term.

The Professor gave a number of public lectures in London and elsewhere and lectured to the Triennial Meeting of the Hellenic and Roman Societies in Cambridge. He visited Libya on behalf of the Society for Libyan Studies in February and was guest lecturer on one of the spring cruises organised by the Hellenic Travellers Club. In the summer he spent three weeks studying Roman monuments in Spain and continued to work on a history of Roman art.

Mr. Hassall presented papers at the Conference on Urban Settlement held at the Institute, and the Council for British Archaeology's Conference on South-eastern Archaeology and the Sea (Group 11A) in November. He gave lectures in courses organised by the Extra-mural Department of Leicester University and Wiltshire County Council. He represented the Roman Society at the First International Congress of Mithraic Studies. He continued work on the inscriptions of Roman Britain and inscriptions from Knidos. He visited sites in south-west Turkey during the summer.

Mr. Reece lectured at the University of Leicester and elsewhere. He spent the Easter vacation working on the coin collections in the National Museum in Valletta at the request of the Maltese Government and the (then) Ministry of Overseas Development. During the summer he directed excavations on two early medieval village sites near Cirencester and a small rescue excavation on Iona.

Publications:

By Professor Strong:

'Report on the Corinthian Capitals', *Excavations at Fishbourne II* by B. W. Cunliffe, Society of Antiquaries 1971, 11-15.

By Mr. Hassall:

'Batavians and the Roman Conquest of Britain', *Britannia I* (1970), 131-136.

By Mr. Reece:

Roman Coins: a practical handbook for collectors, Ernest Benn 1970, 176 pp., 64 plates.
Coin reports in *Excavations at Fishbourne II* by B. W. Cunliffe, Society of Antiquaries 1971, 92-100.

Coin reports in *Chichester Excavations 1*, by Down and Rule, Chichester Civic Society 1971.

WESTERN ASIATIC ARCHAEOLOGY

Professor: E. E. D. M. Oates, M.A., F.S.A. (A.T.)

Lecturer in the Archaeology of the Levant: P. J. Parr, M.A., F.S.A. (R.T.)

Lecturer in Mesopotamian Archaeology: Miss Barbara Parker, O.B.E., F.S.A. (R.T.)

Lecturer in Anatolian Archaeology: J. Mellaart, B.A., F.S.A. (R.T.)

Seminar in Metallurgy and Metal Typology: Mrs. K. R. Maxwell-Hyslop, F.S.A. (R.T. Retd.)

The number of full-time students in the Department was 32, of whom 5 were reading for the B.A. Degree, one for the M.A. degree and one for the Post-graduate Diploma in Mesopotamian Archaeology. Four students were reading for the B.A. Degree and one for the Post-graduate Diploma in the Archaeology of the Levant. Two students were reading for the Post-graduate Diploma in Anatolian Archaeology. One Student was successful in the examination for the Post-graduate Diploma in Mesopotamian Archaeology.

Students in residence registered for Higher Degrees in the Faculty of Arts were as follows:

Mesopotamia

M.Phil.

D. S. Noble (*part-time*): The development of transport in ancient Mesopotamia.

J. F. Curtis: Assyrian metalwork.

The Levant

Ph.D.

M. Saghieh, Miss: Byblos in the Third Millennium B.C.

H. Seeden, Miss: The Phoenician standing deity or warrior figurines and related types during the Second Millennium B.C.

M.Phil.

J. E. Dayton: Ancient glazes in Western Asia.

D. C. Elliott, Miss: The Chassulian culture of Palestine.

M. Oakeshott, Miss: Bronze Age pottery of Palestine and Syria.

D. Price-Williams: Application of statistical methods to some problems of the Middle Bronze Age in Palestine.

Anatolia

Ph.D.

O. Bilgi: Development and distribution of anthropomorphic figurines in Anatolia from the Neolithic to the end of the Early Bronze Age.

J. H. Pullar, Miss: The Neolithic in the Zagros Mountains.

Miss Seeden submitted her thesis during the course of the session and was awarded a doctorate.

Professor Oates was granted leave-of-absence to direct a season of excavation in Iraq at Tell al Rimah from March to May. He also attended the 20th Rencontre Assyriologique Internationale in Paris during July, and read a paper on Tell al Rimah. He also contributed a paper on Assyrian Cities at the Research Seminar in Archaeology at the Institute in December.

Publications:

By Mr. Mellaart:

Excavations at Hacilar, 2 vols. Edinburgh University Press 1970, 249 pp. 179 plates.

By Mr. Parr:

'Preliminary survey in N.W. Arabia, 1968' (with G. L. Harding and J. E. Dayton), *Bull. Inst. Arch.* 8/9 (1970), 193-243.

By Mrs. Maxwell-Hyslop:

Western Asiatic Jewellery, 3,000-612 B.C., Methuen 1970, 286 pp. 25 plates.

'An Illustration to a Mari Inventory', *Iraq* 32 (1970), 165-7.

EASTERN EUROPEAN MEDIEVAL ARCHAEOLOGY

Lecturer:

D. Sturdy, M.A., B.Litt. (Joint post with the School of Slavonic and East European Studies)

During the year Mr. Sturdy visited Czechoslovakia, Denmark, Germany and Belgium. He directed the Institute's training excavation at Levens Park, Westmorland during the Easter vacation. He presented papers at the Research Seminar on Settlement Patterns and Urbanisation and at an Extra-mural Conference in Oxford, and attended conferences of the Vernacular Architecture Group and other societies.

INSTITUTE OF ARCHAEOLOGY

DRAWING AND SURVEYING

Lecturer: H. M. Stewart, B.A. (R.T.)

The number of students attending the course was 47 (18 First Degree, 8 Higher Degree, 1 Diploma, 9 Conservation, 11 Occasional).

A course in Archaeological Surveying was conducted in the Extra-Mural Department.

In the annual Field Course, held this year at Levens Park in Westmorland, the work of surveying was shared with Mr. D. Price-Williams, a post-graduate student of the Institute. The site offered a wide range of practical problems covering many periods.

Publications:

By Mr. Stewart:
Various reviews.

PHOTOGRAPHY

Senior Technician Mrs. V. M. Conlon

Fifty-one students attended the course, including B.A., B.Sc., M.A., M.Sc. and Diploma students. Arrangements were made for trained students to carry out work for their research.

Permission was kindly given to students to work in the Natural History, Victoria and Albert and Guildhall Museums, the Warburg Galleries, St. Paul's Cathedral, St. Bartholomew the Great, Worth Parish Church, Sussex and the University Church of Christ the King. A photograph of the last, taken by Miss Felicity Gough, was accepted for a record-sleeve of a recording of the Bloomsbury Mass sung by the University Choir.

Thanks are due to Mr. Harvey Sheldon for permitting the students to take photographs on his site at Toppings Wharf.

This year the students not only took photographs on their training excavations as Easter, but they also had practice in processing in the field. The annual exhibition of the students' work was held in July. The photographs displayed covered a wide variety of techniques and subjects.

Mr. S. Gourlay spent some time photographing fragments of a sculptured frieze in the British Museum, on which research is at present being carried out.

Publications:

By Mrs. Conlon:
'Some standard photographic procedures suitable for archaeological documentation',
Medic. and Biol. Illustration XXI, 2 (April 1971), 60-65.

CONSERVATION

Senior Lecturer-in-charge: Miss I. Gedye, B.A., F.I.I.C. (R.T.)

Senior Lecturer: H. W. M. Hodges, F.I.I.C. (R.T.)

Lecturer: Miss P. Pratt

Honorary Assistant: Miss A. Plowden, F.I.I.C.

Twenty-nine students followed the Conservation course, 6 being in their final year, 6 in their second year and 11 on part-time release from the British Museum, Horniman Museum, National Museum of Antiquities of Scotland, Edinburgh and the Ministry of the Environment.

The Department's thanks are again due to Dr. A. E. Werner, Keeper of the Research Laboratory of the British Museum, both for acting as External Examiner and for help in other ways; to Mr. Baynes-Cope of the same Department for instruction in the technology, decay and conservation of paper; and to the staff of the workshops in the Museum for instruction in specialist techniques in shaping and mounting metallic antiquities. The help is acknowledged of the British Museum, the Horniman Museum, the London Museum, the Oxford City and County Museum and the Winchester Excavations Laboratory in taking students during the Christmas and Easter vacations. The students derive great benefit from the experience gained in this way.

As in previous years work of instructional value to students was undertaken for a number of museums and institutions. Work was finished on the Etruscan bronzes damaged in the floods in Florence and on the transferred painting discovered under the effigy of Archbishop de Gray in York Minster.

Miss V. Greene, Miss F. Gough, Miss R. Ozil, Miss L. Rimer, Miss A. Trone and Miss L. Weier were awarded the Diploma in Conservation, Miss Greene and Miss Weier passing with distinction. Mr. T. Bryce and Mr. E. Paterson passed the examinations for the Museums Association Certificate in Conservation, Mr. Bryce passing with Distinction.

Miss Gedye and Mr. Hodges lectured on conservation in the field and the setting up of a museum laboratory for a Museums Association Course for Archaeological Curators. In August Mr. Hodges joined a team headed by Dr. P. J. Ucko examining the palaeolithic cave of Hornos de la Pena, Santander, Spain. Miss Pratt spent three weeks at Anamur, a site on the south coast of Turkey, examining Roman wall paintings and wall mosaics; from there she went to Asvan in the Keban to organise general field conservation.

Miss Plowden took third-year students to work on material at her workshops where they were particularly involved in the cleaning and restoration of painted organ pipes from Gloucester Cathedral.

INSTITUTE OF ARCHAEOLOGY

Vacation work was carried out by students in Iran, Turkey and England (London, Swanscombe, Lincoln, Saffron Walden, Dragonby, Winchester and Liverpool).

The following Higher Degree student worked under Mr. Hodges' supervision:
P. T. Craddock (*part-time*): (Field of proposed research) The composition of ancient bronzes.

LIBRARY

Librarian: Miss G. Talbot, M.A., A.L.A.

Assistant Librarian: Miss H. M. Bell, B.A.

Senior Library Assistant: Miss A. Tuckwell, M.A.

Library Assistant: Miss B. M. Barrett

Collections Clerk: Miss J. Phillips, B.A.

During the summer vacation the reading area of the library was enlarged by making a doorway in the western wall of the anteroom and thus incorporating room 103. This has relieved the pressure on the main reading room, and when additional shelves have been erected there will be less congestion in the book stacks.

Work on labelling the spines of the books has continued when other duties allowed; more of the late Professor Zeuner's pamphlets have been sorted and accessed and periodicals have been analysed; but much of the staff's time has been occupied in routine tasks and giving assistance to students.

During the summer Miss Talbot visited Russia and Central Asia and Miss Bell visited Italy. Miss Tuckwell assisted in the excavation at the Pictish/Viking site at Buckquoy, Orkney and later at the Middle Bronze Age barrow at Knighton Heath, Dorset. Miss Barrett participated in the Ministry excavation of the Iron Age/Roman site at Baldock, and in a rescue excavation at York.

The following is a summary of the additions made during the year:

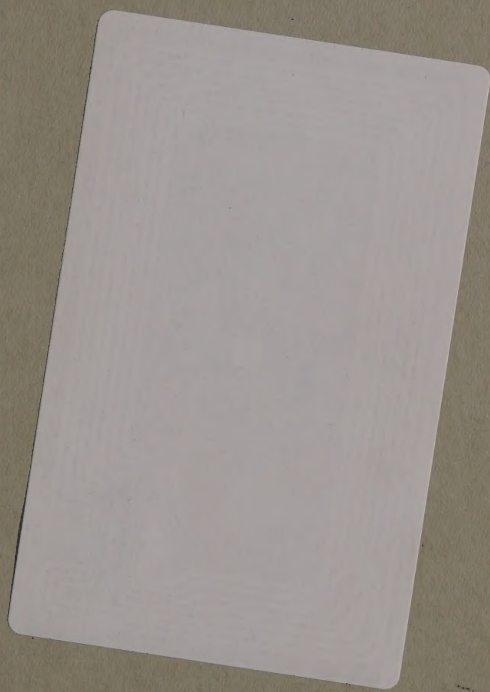
<i>Books</i>	411	<i>Pamphlets</i>	383
Exchanged	105	Exchanged	77
Presented	70	Presented	168
Purchased	236	Purchased	138
<i>Periodicals</i>	539	<i>Volumes bound</i>	440

Volumes lent totalled 5,555, the highest month being November (818) and the lowest September (172). Forty-one books were borrowed from outside libraries and 87 lent.

The following have presented books, periodicals and pamphlets:

Dr. P. B. Adamson; T. Akazawa; A. Alarcao; Dr. J. Alexander; American Museum of Natural History; Professor E. Anati; A. M. ApSimon; Australian Institute of Aboriginal Studies; A. Beltran; G. Bijur; O. Bilgi; A. Biran; M. R. Bloch; A. Bocquet; P. Bosch-Gimpera; Dr. W. M. Bray; Dr. J. Bren; The British Academy; The British

Archaeological Association; The British School at Ankara; The British School of Archaeology in Iraq; California University Archaeological Research Faculty; Canadian Department of Indian Affairs and Northern Development; Department of Archaeology University College, Cardiff; M. Cavalier; the Childe Bequest; Christchurch Canterbury Museum; P. M. Christie; Classical Studies Library; M. Cockle; Professor K. de B. Codrington; V. M. Conlon; L. Copeland; Dr. I. W. Cornwall; P. Costa; Council for British Archaeology: Group 5; Council for Nautical Archaeology; Dr. J. D. Cowen; A. P. Detsicas; Professor G. W. Dimbleby; Editor of *Endeavour*; *Encyclopaedia Britannica*; Professor J. D. Evans; W. A. Evans; G. Farnsworth; L. Fasani; Rt. Hon. Lord Fletcher; A. Flinder; I. Gedye; German Institute Library, London; Goldsmith's Librarian; Dr. H. Gollob; C. Green; Professor W. F. Grimes; Dr. D. B. Harden; Professor C. F. W. Higham; H. W. M. Hodges; Dr. F. R. Hodson; R. N. L. B. Hubbard; Israeli Embassy; C. E. Joel; L. Keen; Dr. K. M. Kenyon; A. Kossé; D. Krantzalov; Professor D. M. Lang; Musée de Verre, Liège; F. S. Mallia; Province of Manitoba Department of Mines and Natural Resources, Geological Division; K. R. Maxwell-Hyslop; Dr. R. S. Merrillees; I. N. A. H., Mexico; M. Mure; Dr. J. G. Nandris; M. H. Newcomer; D. S. Noble; North Western Museum and Art Gallery; Professor K. Ohata; Olominci University Palackeche; P. J. Parr; Percival David Foundation; D. Phillips; E. Pyddoke; M. Ridley; Dr. M. G. Rowlands; D. J. Schove; Senate House; H. L. Sheldon; Society for Libyan Studies; Southampton Archaeology Society; M. G. Spratling; Dr. T. Sulimirski; V. Sussman; G. C. Talbot; J. du Plat Taylor; J. E. S. Thompson; E. H. Toth; G. Turner; Ujjain, Vikram University; Dr. J. d'A Waechter; E. Wagner; Dr. G. J. Wainwright; Professor W. Watson; Asa G. Wright Memorial Fund; G. R. H. Wright.



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